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The Edward Stirling Lectures.[1]

LECTURE II: ÆSTHETIC SURGERY.

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Victoria.

PERHAPS the real moral test for the plastic surgeon is in the æsthetic surgery branch of his work. In the field of malformation there is an indefinable gradient between normal and abnormal. Everyone, for example, is familiar with the well-known cleft lip anomalies, and anyone who sees large numbers of these patients is soon struck by the extraordinary range of every grade of this anomaly of lip formation between the gross bilateral deformity and a completely normal lip. So, too, with ear configuration, with jaw development and the many features which make up the normal physiognomy. When we come to normal racial, familial and personal variations of the facial features, who can define when normal and abnormal configuration start and finish? The "look" of the human face is something in relation only to standards which exist in the minds of individuals, and it is in this field where plastic surgery is often applied for personal æsthetic purposes that I wish to speak.

One carefully avoids use of the words "cosmetic" surgery, for unfortunately it is a field wide open to the charlatan or anyone else who would prostitute the surgical art. The term "cosmetic surgeon" is better left for such people. Cosmetic surgery is not synonymous with plastic surgery, but it is one of the fields of the plastic surgeon, and I want to say something of how we face ever increasing demands for our time and advice in this direction. Cosmetic comes from the Greek "cosmeticos", which means adornment. It has been used for adornment to beautify the hair, the skin or the complexion, and the word would be best left with that meaning and for that purpose. The volume of time, interest, industry, employment and money nowadays devoted to that purpose is only too well known.

You may be interested to know that in just twenty years practising as a plastic surgeon, I have never before spoken about this aspect of plastic surgery to an audience. What would tempt me to choose such an important occasion as this to bring attention to it? Is there an increased public demand for this form of surgery? Yes, there certainly is. This has become increasingly obvious during post-war years; and what is its cause? In the main I believe there are three reasons for this.

1. First I would cite the increasing leisure and luxurious living of a buoyant economy which is expended in the

[1] Delivered on June 3 and 5, 1958, at Adelaide.

materialistic outlook and in competitive social urbanization. Certain things are regarded as done, smart or fashionable, and unfortunately many of the people who have operative procedures on their faces have little interest in the sanctity of privacy and make great petty social capital from detailing their experiences.

2. The second reason is that people who learn of, read and feed on the rubbish of weekly magazine literature seize on spectacular possibilities, the nature of which they are not precisely sure, as something which can make of them a new person. A new outlet is created for the neurotic—a recipe to fix some strained intrapersonal relationship. The self image can be mended. Most adults have grown and developed their self image (how they imagine themselves seen and accepted by others) in terms of self respect, of moral values, activities and accomplishments, of their ambition or their creative capabilities; but there are many whose only self image is what they see in a mirror. These unfortunate people identify their ideas of acceptance or rejection by society in terms of their physical appearance. Any feelings of failure or insufficiency they might have—commonly termed inferiority—are identified with this self image, and the urge for changing this takes on proportions very real and urgent to them if equally absurd to someone else. Such is the self image of the handbag mirror.

3. And, thirdly, I would blame the present-day environment and ill-discipline of the young. Immature minds are exposed to an uncontrolled excess of emotional stimulation. There is an insatiable appetite for publicity about what in the past has been the essentially private affair of sex. This is the age of the half-naked pin-up girl, for whom imagination requires some particular prototype of face. There is some security in conforming and submerging with the crowd, just as the new school boy, who feels quite out if not in exact school uniform. The face of the individual is lost in the conflict with convention and fashion. Symbolic figures of a mass are losing the attributes of humanity. Such is the trend of the world.

4. In Australia I believe there is yet another significant cause of the upsurging demand for æsthetic surgery—our new gained population. The tonic and transfusion effect of these people on a generation inclined to recline on the attainments of our forebears is obvious, but I have been amazed and interested at the cosmetic consciousness of the New Australian population. For many reasons one can well imagine that many of them are actively trying to disidentify themselves with a past phase and place of life. Furthermore, they have come from regions and countries where this sort of work has been and is widely dispensed and regarded as a matter of course. Since the medical heyday of Vienna, facial æsthetic surgery has been practised by individuals in Europe and afar who do nothing else but this sort of work, often in an office with local anæsthesia and various other conditions of compromise and limitation. This is often dispensed with little discrimination in the selection of individuals who come, and with little regard for the effects, good or bad, it can have on appearance or personality. There is no sorting of the sheep from the goats—the man with the ridiculously objective nasal disfigurement from the woman, a social misfit who thinks by some alteration of her configuration, and she is not sure what, that she can rub everything out and start all over again. How do we handle this odd assortment of people, candidates for psycho-plastic surgery? Some say it should be supplied to them without question—but is this in the public interest? They are not easy people to handle, most of them come with very fixed ideas based on their gossip or soft-cover reading. Seeing only referred cases, I find that most of them bear a note which has been dispensed rather as a formality than after any attempt to discriminate between those who are and those who are not likely to benefit. A few indeed come from the psychiatrists; but it has been necessary to work out one's own crude formula of selection from the many who come.

What type of people are they? Why have they come? (And you may be surprised that men are concerned about these things almost as much as women.) What is the basis on which they seek relief from this relative disfigurement, be it real or imaginary? Are they subjective and introspective or are they objective and extrovert about it?

The man with bat ears or the young woman with an ugly long humped nose, the social and employment significance of which are very real in a world of competitive presentation and appearance, are common examples of the objective approach. They say they have heard these things can be corrected and ask is it necessary to carry this disadvantage indefinitely. Though fully aware of their relative disfigurement it has not become their master and they can laugh at it. This, in the main, is the objective approach and they are easy to help if their expectations are real in terms of surgical possibilities. In other words, if one can give them what they desire, when it is done, they go away happily. They are among the most grateful and contented patients one could have. At no stage do they cause trouble. They have had the advantages of modern surgical procedures dispensed with reason and with enormous value to their well-being.

But what of the far larger subjective group? This is by no means so easy, and for the conscientious surgeon it involves the most difficult personal and surgical decisions. The order of the anomaly may be little, and though they may talk a lot these people will not come to the point. They cannot detail to you exactly what they want done or offer any objective detailed criticism of the feature about which they are concerned—just what they would do if they could remodel themselves. Many of them are social misfits and by and large one cannot but conclude that sexual unsatisfaction or disarmony lie at the bottom in the majority of this subjective group of cases. They have distortions of personality rather than distortions of feature. Even if one could achieve the surgical objective desired, they are liable to disappointment at some new-found focus of self-criticism, and if the surgeon is not careful he will soon find himself the object of this. Frequently among these unhappy people we find the man past thirty who for some reason or other has not found his mate in life; the girls do not want to dance with him and his inferiority makes social contact difficult. He may be a city worker, he may be a cow-cocky from some remote area. And there is his female counterpart, the wallflower of the social scramble, the schoolteacher who has a difficult time with her class or the aging secretary in imaginary love with her boss. They are problems of social inferiority to be handled as such. They are not primarily surgical problems. Some of them may be fit subjects for operation, most are not, and it is an interesting exercise in discrimination.

In this group is yet another common prototype far more difficult to handle—the woman about menopause age who for reasons often beyond her own personal control is losing the interest and demonstrative affections of her husband. In the bickering that builds up, one day he calls her "an ugly-faced old so-and-so". That is the bitter pill which she never forgets. She saves up in secret, seeks out a plastic surgeon and expects him so to glamorize her that she brings her man to heel. To induce male humility and shame is the time-honoured method of her sex. They are adamant, strong, know what they want and will not take no for an answer. They have everything but the specifications which would enable the surgeon to make the silk purse. What they expect is again generally remote from what can be done. Their intense approach is one of revenge, and it takes a strong man and a stronger line of talk to say them nay.

In a word, then, we have to sort out those with the objective approach as the candidates for operation, provided again that what can be done is in line with what they expect or at least that any odd ideas they have can be modified to fit practical possibility. For these people I feel our job is fairly clear cut, to answer them Yes or No, to explain clearly the pros and cons of what operation would involve in time of hospitalization, risks, general or particular, time off from work and so on. We indicate to them as clearly as we can what we would expect as a result, erring rather on the conservative side and leaving some room for the element of surprise. It is highly elective

work and the risk factor must be negligible to warrant it at all. They are not minor operations and they warrant the very best of hospital facilities and ancillary services.

Fortunately, the blood supply of the face makes for quick healing and minimal complications. Hæmatoma, the bugbear and the usual prelude to any sepsis, is in the main dependent on technical factors, and, as in all plastic surgery, it is an index to the care, time and detail which are expended in its application.

The Nose.

Requests for alteration to the shape of the nose far exceed the demands for other æsthetic operations. An unusual nose is a natural focus of attention and ridicule. The person conscious of a nasal deformity can never imagine his face without seeing his nose. These people often tell amazing stories of how they contrive to move and behave in society so that they are rarely seen in profile. Nasal plastic surgery has attained a high degree of perfection in the practised hands of surgeons with imagination. All of the cartilaginous and bony support of the nose responsible for its contours is accessible from inside the nasal vestibule. Instruments are designed for all purposes and it is essentially a matter of relative sections and resections of appropriate cartilaginous and bony structures to achieve the desired result. Rarely does simple alteration of one structure suffice. To alter a nose in one dimension, most of the structures in that dimension must be altered to maintain balance and prevent unnatural effects.

The long humped nose is reduced in all its dimensions, first by resection of its bony and cartilaginous hump, then by reduction of the vertical dimension of the cartilage system by removing the upper portions of the alar cartilages or the lower portion of the lateral cartilages or both. The shape of the tip may be altered by section and resuture or adjustment of the alar cartilages. The tip is raised by shortening of the septum from below, reattaching the columella. Finally, the lateral dimension of the nose is generally narrowed, so that normal contours of the dorsum are restored, by infracture and setting of the nasal skeleton into the newly trimmed region of the septum. These are all manipulations which must be done in planned relativity with precision, judgement and due æsthetic sense. The skin itself is rarely interfered with. If widely undermined high and out into the cheek region it will take up a new position relative to the altered nasal skeleton without appearing as relative excess. If the surgeon is over timid, he may be afraid to undermine the skin properly, he may remove the bony hump and leave an ugly hump of cartilage lower down or he may do no more than resect the hump and avoid the infracture which leaves an ugly square-looking dorsum which nobody likes.

To a lay person there certainly is an element of drama in such a procedure. The operation is virtually painless. A moulded plaster is used for five or six days after the operation to control swelling. There is always a varying degree of effusion about the eyes, the cheeks and the margins of the plaster. When this is finally removed to reveal an entirely new shape of the nose with no wounds on the outside, the first comment is nearly always one of delight and intense surprise. Gratitude is freely demonstrated.

I am purposely confining my remarks to non-acquired, or shall we say personal, deformities, but there are many post-traumatic and post-operation nasal deformities which are often aggravated by growth factors. These include every conceivable order of twist or asymmetry, many of them minor, but some gross and comic. However, even within the non-acquired group there are many variations from a socially standard nose other than the long humped type. Some of these demonstrate relative hypertrophy of the tip only, with large alar cartilages. A box-like shape with wide separation of the medial crura of the alar cartilages is a condition I regard as a suspicion of the rare anomaly of bifid nose. These variations can also be corrected by altering the dimensions and relative disposition of the alar cartilage (just as we do with some of the nasal deformities associated with unilateral lip cleft). Flat noses with a wide alar flare and negroid appearance make another group. In some of these we reduce the alar flare by carefully placed wedge excisions near the alar base. The scars though partly outside generally become quite indiscernible. Other cases of deflexion or buckling may require special attention to the septum.

When the bulk or contour of the nose requires augmenting or support, we still generally prefer to use living autogenous bone grafts. For thirty years the surgical literature has been an impressive catalogue of new innovations for a quick and easy solution to this problem of nasal support. Ideas come so fast, indeed, one could not keep pace with trying them all even if one attempted to do so. All of them sacrifice surgical principle for the expedient. Apart from autogenous cartilage, which has always had its advocates, the list includes homologous bone, fresh or stored; stored homologous cartilage; heterologous bone, usually boiled beef bone; ivory, tantalum, acrylic in its many variations, polythene, soft plastic and fibrin sponge. One has had cause to remove most of these things for various reasons, either because of complications or failure to achieve a purpose. Many remove themselves in keeping with nature's general reaction to foreign materials. There is always a raw surface in juxtaposition to the foreign body and if not sooner or later extruded it is only a matter of time before reactive fibrosis and its deforming effects are manifest in such a superficial region.

It is not unreasonable, therefore that, until the "first in with the latest" brand of literature is replaced by some carefully studied and documented long-term follow-up appraisal in relation to these innovations, we will continue to use bone. This despite its disadvantages that it must be obtained elsewhere on the person, and that a rough cancellous bone surface does not easily slip in, through a split columella incision, to a prepared bed in contact with nasal bone, where it will unite and fix. Over the years there have only been complications we could count on one hand, among many satisfied patients.

Many suggestions have also been made to reduce the buckling habit of cartilage, but I have had no experience with these. One can reduce the taking of a cancellous bone graft from the iliac crest to a procedure no greater in magnitude than that for obtaining costal cartilage. A wafer of iliac crest with its attachments can be turned back like the lid of a box, the cancellous bone removed and the lid replaced. The graft is then easily shaped to the particular requirements of the case, and we are not confined to any preconceived idea of shape or bulk.

However, there is one particular problem which concerns young children. Bone taken from an epiphyseal region will generally absorb. For some unfortunate kiddies with badly collapsed noses we have used an acrylic implant to maintain development and shape as an interim arrangement, recognizing that it is only a temporary expedient over the growth period and it will have to be renewed periodically. We have no satisfactory alternative.

In summary, such is the value and effect of nasal plastic procedures in properly chosen cases that most failures must lie at the feet of the surgeon himself. Results in properly chosen cases are very good, but I repeat yet again they depend not on what the surgeon himself thinks, but on what the patient thinks. The worse the deformity, the stronger the indication, the better the result. It is in the equivocal case or in a bad choice from the introspective and neurotic group that failures arise. In short, nasal plastic surgery has a definite and a very valuable place in the legitimate range of surgical art.

The Ears.

Another region of frequent concern is the ears. Normal ear contours vary indefinitely in the configuration of tragus, antitragus, helix and anthelix, lobule or pinna. As you know, the ear develops from six separate tubercles about the posterior end of the first cleft, and the degree to which their developments or fusions fail make for such an

enormous range of minor variations in ultimate shape that again there is no saying where normal becomes abnormal. The most common of ear anomalies is some deficiency in the formation of the anti-helix so that there is no posterior incline in the main structure of the pinna, which sticks out to make typical bat or pixie ears. With this may go anomalies of size, relative enlargement or smallness. There is no escape from the social handicap of these anomalies to children, especially little boys, for children are unkind, and in gross cases parents are well advised to have these ears corrected before a boy starts school. This again is a precision operation in three dimensions and two planes. It is quite an exacting surgical exercise to make a new anthelix fold, involving section or resection of cartilage in the right amount and in the right place, with a nicety of judgement, if acceptable contours are to result without the appearance that the ear has obviously been operated on. These operations are not nearly as easy as many people would imagine; "Just a simple little thing", the parents say. Some of these unfortunate children pass through childhood without correction for one reason or another. Added to this there are a whole host of lesser anomalies and asymmetries of this type which make some adults introspective and ear conscious, just like the nasal introspectives. These individuals again must be assessed in much the same way, so that operation is reserved for obviously correctible anomalies and that personal inferiorities are not underlined and made worse by unnecessary or equivocal operative procedures.

With gross anomalies of the ear, congenital aplasia of various types, after injury or after surgical total removal, despite much time and trial we can rarely reconstruct any reasonable counterpart for the normal ear. We can alter ear structures, we can augment ear structures, but we cannot make an entire new ear which is really acceptable. I again mention the scope of modern-day prosthesis, and I am quite sure the future lies in improvements of these prosthetic aids and in methods of their retention.

Skin Conditions.

Finally, I must say a word about those highly publicized skin conditions which are normal accompaniments of the aging process. These are due to skin atrophy and loss of elasticity and wasting of subcutaneous tissues. This causes facial lines—wrinkles and crow's feet—and altered contours, dewlaps and jowls, which most of us accept in good grace without regard for what others say and think, or for what we think they think. But there are some, usually motivated by insecurity, who cannot accept these things, and these sentiments are again fanned by loose literature and talk of face-lifting procedures.

What is face lifting? We can stretch a skin area by simple excision and suture, but if the resulting scar is to be free of the stigma of tension closure, that is stretching and widening of the scar, or perhaps hypertrophy and keloid, and if the effect of the excision is to be noted beyond the area of undermined margins, then some ingenuity is required and the procedure becomes a much more radical one. Applying this to the face, for obvious reasons we cannot have a scar sited in the centre of the cheek. We have skin which is closely attached as in no other region to a subcutaneous muscle plane, and there are strict limitations to the order of safety with which the skin can be widely separated from these under structures. In the regions of the nose and chin it would require a very radical procedure to give any obvious effect. We can make a concealed incision in the hair line of the temple, down in front of the ear, up behind the ear and around the hair line of the neck. If we undermine from this forward over the whole extent of facial skin it is not long before we have an enormous raw area and enormous undermined skin flaps which might extend the capabilities of blood supply, even of the face. This can be done with safety across the cheeks down as far as the naso-labial groove and the angle of the mouth, but little further. Even by the most radical undermining procedures we still cannot free from under-attachments some of those areas where skin wrinkling is often most obvious. We can free the neck skin, but it is not practicable to separate the skin of the chin from the many septa of fibrous tissue among the chin muscles and fat, all extremely vascular. After excision of the posterior excess of this wide undermined flap from the region of the preauricular wound, we can then on stretch resuture it in layers, after some care and time are taken to arrest hæmorrhage, which is inaccessible to ordinary methods and for which we must generally rely on pressure and drainage.

It is true that we can thus for a time at least get rid of most of the wrinkles about the cheeks and the jowls about the jaw and upper neck, but there it ceases. The forehead may be included in the procedure, but the eyelids must be left for a subsequent procedure, referred to in magazines as "the encore". Sometimes baggy eyelids alone ("cocktail eyes") are reduced by a procedure similar in principle. All this rejoices under the pretty name of meloplasty (mel means honey). How many patients would submit to such a procedure, realizing that at best it can but temporarily counteract a natural process which will continue relentless and regardless, if they could see it as the time-consuming, difficult and bloody business it is?

What is its over-all effect? Some partial, and only partial, alleviation of the concern, an odd-looking face, even if the cheek skin is drum tight other areas look conversely aged, and at the best it conforms only to some hypothetical prototype of smart looks. Unlike nasal plastic operations, face lifting has little, if any, place in the surgical repertoire. What is its little place? Perhaps it is a reasonable temporizing procedure for some few women who earn their living under public gaze. It will perhaps give them another year or two to compete with youth in certain orbits of occupation or interest. It has some place when skin atrophy is associated with marked pox-like scarring, after severe acne or perhaps smallpox. Skin depressions can be improved to some degree by stretch, so that the contours will take cosmetics more acceptably. And, thirdly, when the main concern is chook-neck deformity, jowls and dewlaps about the jaw and under the chin, I think the procedure is more effective for the simple reason that we can undermine from both sides to the midline, that is we can truly get a lifting effect.

Even with these odd relative indications, looked at in perspective, it is a procedure which would be better stamped out of common talk and thinking altogether. In twelve years of post-war civilian practice I have done this operation 12 times, and have not yet found indication for it in public hospital practice. And yet, if you please, it figures in our National Health Insurance Scheme—on what advice, I would be very interested to learn.

Conclusion.

If done well, æsthetic surgery is not easy surgery. There is no margin of error. Equivocal results are a waste for all concerned and complications are catastrophic. It follows that if it is to be done, it must be done under proper conditions with the highest plane of anæsthetic ancillaries. It is not surgery to be done by the back door under clandestine conditions, by short cuts or compromise. On the other hand, we know it is a veritable hunting ground for the charlatan and quack, who as yet, I am glad to say, have played little part in this country. There is ample evidence, however, that the pressure of supply and demand is now on, and if there is to be no better public enlightenment than some we have seen lately, it will only be a matter of time before there will arise a group who would prostitute the name of surgery to pursue these ends on a cash-and-carry basis—two chairs, no waiting. They are to be found in continental cities, in London and America, and it may be only a matter of time before we have them here.

My continued endeavour and one of the main objects of this presentation tonight, on which I hope Edward Stirling would not be too hard, is to foster the only antidote to this drift—an informed profession and a public enlightened and accepting surgery only by surgeons whose qualifications are their licence, experience and integrity, and whose conscience is their guide.

FATAL STAPHYLOCOCCAL INFECTIONS.

By B. N. PURSER,
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THIS paper analyses 42 fatal cases of staphylococcal infection in which an autopsy was performed at the Royal Prince Alfred Hospital, Sydney, in the seven-year period 1950 to 1957.

The distribution of cases per year is as follows: one in 1950, one in 1951, three in 1952, two in 1953, two in 1954, seven in 1955, 20 in 1956, six in 1957 (seven months). The marked increase in the number of fatal infections of the last three-year period is a reflection of the general increase of severe staphylococcal infections seen in this hospital.

According to the predominant findings at autopsy the cases fall into four main categories, although there is a certain amount of overlapping. In Group I are 15 cases in which the predominant autopsy findings were staphylococcal septicæmia and pyæmia; in Group II are five cases of bacterial endocarditis; in Group III are 17 cases of suppurative pneumonia; in Group IV are five cases of staphylococcal cerebral abscess or abscesses.

General Findings.

There were 31 males and 11 females aged between eight years and 83 years. The length of their stay in hospital varied from one hour to eight months. The greatest number of cases (eight) occurred in the 51 to 60 years age group, and 26 of the patients were over the age of 40 years (Table I). Rogers (1956) has discussed the change towards older age groups of fatal staphylococcal infections and these findings parallel his.

TABLE I.
The Age Incidence.

Age Group. (Years.)	Number of Cases.
0 to 10	1
11 to 20	4
21 to 30	5
31 to 40	6
41 to 50	6
51 to 60	8
61 to 70	5
71 to 80	6
Over 80	1

Origin of Infection.—In 18 cases the infection was contracted in the hospital. Six of these 18 fatal infections followed intravenous infusion with resultant thrombophlebitis; in three infusion was by femoral or inferior vana caval polythene intubation. A further two cases were probably due to infection after infusion procedures, but the evidence is incomplete. Wound infection after operation was the origin in three cases (two after craniotomy and one after gastrectomy). A fourth patient in this group may have developed the original staphylococcal infection during a previous admission to hospital for surgery complicated by post-operative pneumonia. In three cases the death of the patient followed post-operative pneumonia, and in the final three death was due to cross infection not related to surgery. In 16 cases the infection originated outside the hospital, four of these resulting from pyogenic skin infections. In the remaining eight cases the point of origin is uncertain.

Shock.—In 15 cases an episode of shock with hypotension and/or other signs of peripheral circulatory collapse was noted. In most cases this was terminal and indicative of overwhelming toxæmia.

Skin Eruptions.—Skin eruptions were observed in 10 patients in the terminal phases of the illness. These varied from erythematous and macular rashes to purpuric spots and were mostly located on the upper thorax and arms. In three the rash was on the thighs and abdomen.

Leucocyte Count.—A predominantly neutrophil leucocytosis was a common finding, occurring in 24 cases, the highest total count being 69,000 per cubic millimetre. Leucocyte counts were not recorded in 10 cases.

Bacteriology.—Bacteriological confirmation was obtained in all cases in this series, antibiotic sensitivity tests being performed in all but three cases. Blood cultures yielding positive results were obtained in 16 cases and "positive" swabbings from autopsy material in 19 cases. In 32 cases (76%) the organism proved to be resistant to penicillin. Of the cultures obtained from autopsy material 80% were penicillin resistant, which corresponds closely with an earlier report by De Vries and Pritchard (1955), who obtained 82% of penicillin-resistant cultures of *Staphylococcus aureus* from 95 autopsies.

Sulphonamides and all the routine antibiotics, namely penicillin, streptomycin, chlortetracycline, chloramphenicol, oxytetracycline, and erythromycin were given, together with oleandomycin in one case. Six patients had four antibiotics, two patients had five and one had all six routine antibiotics. In six no antibiotic treatment was given. Staphylococcal antitoxin was given to four patients.

Fever.—Marked fever with or without rigors occurred in 24 of the patients.

Jaundice.—Jaundice before death and/or as a post-mortem finding was a feature in seven instances.

Autopsy Findings.

Pneumonia was the most frequent autopsy finding, being recorded in 33 cases. In six it was lobar in distribution, in 14 it was broncho-pneumonic and in 13 it was embolic in nature. Suppuration was found to be very common in the pneumonic process in these cases, microscopic or macroscopic abscess formation being seen in 25 out of the 33 cases. It is believed that only the brevity of the clinical disease of some of the remaining patients with pneumonia prevented abscess formation. The rapidity with which the staphylococcus can destroy lung parenchymal tissue is exemplified by the following case histories.

CASE I.—A man, aged 30 years, with a four-day history of pneumonia, had an X-ray examination of the chest on his admission to hospital, which showed only left lower zone consolidation. Cavitation had appeared radiologically by the third day, and at autopsy the following day bilateral suppurative broncho-pneumonia with multiple abscess formation was found. Very little normal tissue remained in the left lung (Figure I).

CASE II.—A woman, aged 50 years, had been given a transfusion three days previously at another hospital for treatment for hæmatemesis, and had been transferred to this hospital for surgery. Polythene tubing was inserted into the saphenous vein one day before partial gastrectomy was performed. Thrombo-phlebitis was noted on the first post-operative day. She rapidly developed high fever, shock and signs of pulmonary infarction; she died on the same day, three days after the insertion of the polythene tube. At autopsy pus was seen in the saphenous vein with thrombosis, and there was extensive suppurative embolic pneumonia (Figure II).

Bacterial endocarditis was present in nine cases, the mitral valve being most commonly affected (six cases). The aortic valve was involved in two cases, the tricuspid valve in two cases and the pulmonary valve in one. Septic infarcts in other organs were found in 11 subjects, splenic infarction occurring in seven of these.

Group I (Septicæmia and/or Pyæmia).

The use of the term pyæmia here follows Boyd (1943) and implies a septicæmic process which has proceeded to micro-abscess formation in one or more organs from circulating infected thrombi.

There were 15 patients in this category—nine males and six females. Seven contracted the infection in hospital, six prior to admission to hospital, and in two the ætiology is doubtful. Of the seven infections contracted in hospital five followed intravenous infusions with resultant thrombophlebitis. Insertion of polythene tubing was the mode of infusion in two of these. One further patient may have had thrombophlebitis, but documentation is incomplete. The seventh patient developed wound infection after gastrectomy with resultant pyæmia. In three patients the

infection originated outside the hospital from pyogenic skin lesions. "Positive" blood cultures were obtained in 10 of these 15 patients.

CASE III.—A man, aged 43 years, was admitted to hospital with a history of having had a carbuncle on the back of the neck for one week. His local practitioner had given penicillin for this with some improvement. A few days later the patient developed chest pain, rigors and vomiting. Examination showed an obviously ill man perspiring freely and in respiratory distress. Scattered râles were heard over both

FIGURE I.

The left lung at autopsy in a case of bilateral suppurative broncho-pneumonia with multiple abscess formation.

lungs, and an erythematous rash was noted over the thighs and abdomen. Sputum and blood swabbings from the carbuncle were taken for culture, and treatment was commenced with chloramphenicol, streptomycin and staphylococcal antitoxin. By the third day the patient was much worse; the leucocyte count was 29,000 per cubic millimetre and radiological extension of lung lesions was obvious. Erythromycin was commenced, but death occurred on the fifth day of his stay in hospital. Autopsy findings showed pyæmic abscesses in the spleen and bilateral suppurative embolic pneumonia. All cultures produced *S. aureus* insensitive only to penicillin.

Group II (Bacterial Endocarditis).

There were five patients in this group, comprising three males and two females. Four patients entered hospital with the infection and the fifth patient developed septicæmia after the insertion of a polythene tube for intravenous feeding. All five patients had "positive" blood cultures; three showed evidence of rheumatic endocarditis.

CASE IV.—A man, aged 22 years, was admitted to hospital with a history of stiff neck, fever and drowsiness of two days' duration. The patient had had rheumatic fever as a child. On examination the patient was drowsy and disorientated with diminished motor power, marked neck stiffness and a positive Kernig's sign. The temperature was 102° F. Aortic systolic and diastolic and mitral systolic murmurs were noted. Examination of the cerebro-spinal fluid revealed 355 leucocytes per cubic millimetre, 99% of which were lymphocytes. Penicillin therapy was commenced. The patient was then apyrexial until the tenth day of his stay in hospital, when the fever returned. The leucocyte count was 25,000 per cubic millimetre, and blood cultures taken at this time grew *S. aureus* sensitive to the six routine antibiotics. His condition deteriorated on the eleventh day. Erythromycin was given, but the patient died the following day. At autopsy acute staphylococcal endocarditis supervening upon old rheumatic endocarditis was found, together with staphylococcal septicæmia with splenic and renal septic infarcts.

CASE V.—A man, aged 53 years, was admitted to hospital with a three weeks' history suggestive of subacute bacterial endocarditis, but blood cultures taken at this time yielded *S. aureus*. He had received antibiotics before his admission and in hospital was treated with massive doses of bacteriostatic drugs. He became oliguric and finally died in uræmia three weeks after his admission to hospital. At autopsy there was evidence of staphylococcal septicæmia together with bacterial endocarditis and chronic rheumatic heart disease. In addition the kidneys showed a classical picture of acute progressive glomerulonephritis. In this case the virulence of the organism was perhaps depressed by the bacterio-static antibiotics, resulting in the clinical picture of subacute bacterial endocarditis rather than of acute bacterial endocarditis.

FIGURE II.

The lung at autopsy in a case of extensive suppurative embolic pneumonia.

Group III (Suppurative Pneumonia).

There were 17 patients in this category, comprising 14 males and three females. Seven developed the staphylococcal infection in hospital, seven prior to their admission to hospital, and in three the ætiology is unknown. Of the seven hospital-contracted infections, three were cross-infections in non-surgical cases and three were post-operative pneumonia. In the remaining case the infection probably

followed intravenous infusion with resultant phlebitis. In one case originating outside the hospital the source of infection was a pyogenic skin lesion.

"Positive" blood cultures were obtained in only one of the 17 patients.

Illustrative of this group are Cases I and II described earlier and the following case.

CASE VI.—A man, aged 69 years, was admitted to hospital with a short history of abdominal pain and vomiting. At operation a ruptured appendix was removed and a drainage tube inserted. Suction, intravenous fluids and treatment with oxytetracycline were then commenced. On the second post-operative day the patient complained of chest pain and dyspnœa, and an X-ray examination of the chest suggested broncho-pneumonia. Five days later penicillin and streptomycin were commenced, but the patient's course was downhill and he died two weeks after his admission to hospital. At autopsy lobar pneumonia with multiple abscess formation was found. Post-mortem swabbings grew *S. aureus* sensitive only to chloramphenicol.

Group IV (Cerebral Abscess).

There were five patients in this group, all of whom were males. In one death followed suppurative middle-ear disease contracted in hospital; in two the origin was post-craniotomy wound infection, and a fourth patient may have developed the original infection during a previous stay in hospital, when a herniorrhaphy operation had been complicated by post-operative pneumonia. In the fifth patient the infection occurred prior to his admission to hospital. No blood cultures were taken in these cases.

CASE VII.—A man, aged 41 years, was admitted to hospital with a history of an episode of pneumonia one month previously. This had followed a herniorrhaphy performed at another hospital. The patient had been treated with "Tetracyn" for this episode of pneumonia. Three days before admission to this hospital the patient had developed severe headache, fever and neck stiffness. Examination of the cerebro-spinal fluid had shown 8000 leucocytes per cubic millimetre, and a protein level of 400 milligrammes per 100 millilitres. On his admission to hospital the patient was semi-comatose, with marked neck stiffness, a positive Kernig's sign and râles over both lung bases. Cerebro-spinal fluid examination revealed 4600 leucocytes, 78% of which were polymorphonuclears. Treatment with penicillin, streptomycin and sulphadiazine was commenced. The blood leucocyte count at this stage was 23,000 per cubic millimetre. In spite of further treatment with intravenous fluids, penicillin given intrathecally and oxytetracycline given intravenously, the patient died on the fifth day. At autopsy multiple cerebral abscesses with free pus around the mid-brain were found. Swabbings from the abscesses grew *S. aureus* sensitive to erythromycin only.

Discussion.

Eighteen patients developed fatal infections within the hospital; seven died as the direct result of intravenous therapy, comprising five instances of pyæmia with or without endocarditis, one of acute endocarditis and one of suppurative pneumonia. Three patients died as a result of wound infection, one of these with pyæmia and two with cerebral abscesses; three died of post-operative pneumonia, three of respiratory cross-infections and one of suppurative middle-ear disease from cross-infection. There remains one patient in whom the mode of infection is doubtful, although the patient was treated with intravenous infusions.

Of the 16 infections which originated outside the hospital four started as pyogenic skin infections.

There remain 20 patients in whom the original site of infection is uncertain (i.e. 12 of those in whom the infection originated outside the hospital, and eight in whom it was doubtful whether the infection was contracted at home or in hospital), and of these, 13 infections probably commenced as staphylococcal respiratory infections.

A consideration of the cases forming the material for this study leads to the following general conclusions.

1. There has been a marked rise in the death rate over the last three years from staphylococcal infection, and at the same time the numbers of cases of severe staphylococcal sepsis have been increasing. These findings are similar to those of Spink (1956) and of Rogers (1956).

2. The organism can destroy tissue and kill patients with great rapidity. This is one of the most striking features in many of the cases in the present series. However, that it is by no means a recent observation is shown by the report in 1919 of Chickering and Park of over 300 deaths from pneumonia. Numbers of their patients died within four or five days of the beginning of symptoms.

3. In some cases bacteriostatic antibiotics appeared to lessen the virulence of the organism, but in many cases massive doses of antibiotics, often in combination, appeared to have no effect whatsoever upon the course of the infection.

4. The fact that seven patients died as a direct result of intravenous therapy points to the potential dangers of infusion procedures. These should be treated as surgical measures and performed in a strict aseptic manner.

Summary.

Forty-two fatal cases of staphylococcal infection in which an autopsy was performed at the Royal Prince Alfred Hospital in the period 1950 to 1957 are analysed. The cases are grouped according to predominant autopsy diagnoses and illustrative case histories are presented.

Acknowledgements.

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THE ROLE OF PSYCHIC STRESS IN THE ÆTIOLOGY OF NON-TOXIC GOITRE.

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IT is well recognized that psychic trauma may lead to the onset of thyrotoxicosis, and it is said that one of the first cases described by Parry came into this category (Werner, 1956). However, evidence that stress plays a part in the production of non-toxic sporadic goitre is practically non-existent. In the past few years, in a number of patients presenting with non-toxic goitre, there has been very strong presumptive evidence that psychic stress is related to the development of the condition. In these patients the diagnosis of non-toxic goitre has been made because they did not fulfil one or other of the following criteria for thyrotoxicosis. The first is the presence of reliable clinical signs such as eye changes, progressive weight loss despite a normal or increased appetite in the absence of glycosuria, and clear-cut relief of symptoms after therapy with antithyroid drugs; and the second is a raised value for the radioiodine uptake test, which cannot be depressed to normal by thyroxine therapy.

The following case histories are given as examples.

Reports of Cases.

CASE I.—Mrs. A., aged 38 years, had noticed a small goitre since adolescence. When she was 36 years of age three members of her family died within one month, one of them being her best friend. After this, the goitre began to enlarge quite markedly and she developed symptoms of

lassitude, insomnia, irritability and poor appetite with loss of weight. Examination showed a moderate-sized diffuse goitre with no clinical indication of hyperthyroidism. A radioiodine uptake test was performed and the uptake rate factor k_1 was 0·0073, which is above normal limits (Oddie, 1957). In view of the clinical findings it was considered that the raised uptake was due to compensatory hyperplasia of the gland, and she was given 1-thyroxine sodium, 0·2 milligramme a day, for seven weeks. At the end of that time the goitre was softer in consistency and the rate factor had fallen to 0·0012, confirming the absence of hyperthyroidism.

Case II.—Mrs. B., aged 25 years, had had a small swelling in her neck since adolescence, but it had never altered. She had her first pregnancy at the age of 24 years and the goitre was noted to remain constant in size throughout the period of gestation. The baby died ten minutes after birth. She worried a great deal about this, became nervy and irritable and developed sighing respiration. The goitre began to increase in size and enlarged progressively over the next six months. On examination she had a moderate-sized diffuse goitre and a tachycardia rate of 100 per minute. The radioiodine uptake test gave a normal result. She was treated with thyroid, two grains a day, and after six months the goitre had become much smaller and was barely palpable.

Case III.—Mrs. C., aged 50 years, had divorced her first husband 12 years previously and her father had died from cancer a few months later. A goitre appeared for the first time two weeks after her father's death. On examination she had a moderate-sized nodular goitre, but no evidence of hyperthyroidism, and the iodine uptake test gave a normal result. Thyroidectomy was performed and the pathologist reported as follows: "The sections show the features of a nodular colloid goitre. The vesicles vary in size but have a uniform content of colloid. There are thick bands of fibrous tissue and small foci of calcification in some areas."

Case IV.—Mrs. D., aged 44 years, complained of palpitations, listlessness, irritability and headaches for four years since the death of her father whom the patient "idolized". She was very upset at the time and a goitre was first noticed then and had persisted until the present. On examination she had a small diffuse goitre without evidence of thyrotoxicosis. The iodine uptake test gave a result of $k_1 = 0{\cdot}0030$, which is a normal figure.

Case V.—Mrs. E., aged 39 years, was well until the age of 37 yeers when her two-year-old son upset a bowl of hot toffee, which she had placed on a table, and was very badly burnt on both hands. She felt that the accident was due to her negligence and she suffered a great deal of mental stress. A goitre appeared within a few weeks and she developed palpitations, intermittent morning vomiting, loss of weight and irritability. Examination revealed a moderate-sized slightly nodular goitre and no clinical signs of thyrotoxicosis. The results of the iodine uptake test and the basal metabolic rate were both within normal limits. Partial thyroidectomy was performed and the pathological report was as follows: "The thyroid vesicles vary in size and are filled with colloid. The lining epithelium is flat. There is no increase of fibrous tissue. The features are those of colloid goitre."

Discussion.

In addition to the cases recorded there were 10 other patients who gave a clear-cut history of the development of a goitre associated with severe mental stress. This gives an incidence of 4% among 377 patients with non-toxic goitres. These figures were obtained from a retrospective survey of patients investigated before such a relationship was considered, so that there is no possibility of bias in the taking of the histories. The part played by psychic stress is always considered in the interrogation of thyrotoxic patients, but rarely in those in whom the goitre is obviously non-toxic. Most of the 15 patients discussed here offered the information spontaneously. Specific questioning would probably have brought to light more patients in whom stress had preceded the appearance of the goitre.

In addition to these 15 patients there were five in whom the thyroid swelled suddenly just after a psychic shock, but in whom the explanation was that hæmorrhage had occurred into a cyst. The following case is a typical example.

Case VI.—A man, aged 37 years, underwent a period of severe psychic stress when his young daughter was knocked down and killed in a road accident. Three weeks after the accident a painless lump appeared suddenly in the left lobe of his thyroid. The lump was excised surgically and the pathologist's report was as follows: "A portion of thyroid gland weighing 11·5 grammes. A thin-walled cyst measuring 3 cms. is present and contains blood. Microscopically sections show the thyroid tissue to consist of acini of various sizes containing normal appearing colloid and lined by a low columnar epithelium. Some fibrosis is present and hæmorrhage into a cyst has occurred. No evidence of malignancy or thyrotoxicosis was seen."

Although it is rarely mentioned in the standard works, clinical teachers have recognized for years that hæmorrhage into thyroid cysts may follow emotional crises (Rundle, 1951). In these five cases there seems no doubt that this was so. Possible explanations for the phenomenon are that a rise in blood pressure after emotion may lead to the rupture of a small vessel in the cyst wall, or that some change in the gland metabolism may cause local vasodilatation, with bursting of a blood vessel which is poorly supported by the degenerate thyroid tissue in the cyst.

This raises the question whether the occurrence of the goitres in the previous 15 patients could have been due to a similar phenomenon. Of these 15 goitres, six were classified as diffuse and nine as nodular. Histological examination of the latter nine showed evidence of recent or old hæmorrhage or calcification in only five. Even assuming that the initial recognition of these five goitres was due in all cases to bleeding into a cyst, there are still 10 patients for whom this explanation is untenable.

Ætiology of Simple Goitre.

The ætiology of simple goitre is most succinctly described in the words of the Goitre Subcommittee of the Medical Research Council of Great Britain (1944).

> The immediate cause of simple goitre is failure of the thyroid gland to obtain a supply of iodine sufficient to maintain its normal structure and function. This failure is usually brought about by an absolute environmental deficiency of iodine, it may also be caused by factors which interfere with the availability of dietary iodine or which impose an abnormal demand on the thyroid gland.

In the 15 patients investigated in this study, none came from a goitre belt of N.S.W., but two had lived in goitrogenic areas until a few years before the appearance of their goitre. It is possible that they were ingesting goitrogens in food, but this seems unlikely. In none of them was there any evidence of an unusual diet or any recent change in their dietetic habits. The third possibility is that the demand on the thyroid was increased, and further that this was due to nervous stress. There were no other obvious causes for increased demand, and in fact the patient in Case II had concluded a normal pregnancy without evidence of increase in thyroid size shortly before the onset of her stress situation. It is of interest that the types of psychic traumata noted in these patients corresponded closely to those recorded by Gardiner-Hill (1929) in his investigations into the ætiology of Graves's disease.

Emotional Stress and Thyroid Function.

It is quite clear that psychic factors can influence thyroid function, as is shown by the relation of emotional stress to the onset of thyrotoxicosis (Gardiner-Hill, 1929; Lidz, 1949). In 130 thyrotoxic patients seen during the same period as the patients forming the subject of this paper, 30 (23%) had clear evidence of an emotional factor in the genesis of their disease.

There is also experimental evidence on this matter. Hetzel *et alii* (1952) found marked fluctuations in plasma protein-bound iodine values in euthyroid and hyperthyroid patients exposed to acute psychological trauma, whereas the readings remained constant when the subjects were in a calm state. Brody (1949) claimed that there was a significantly increased mean serum precipitable iodine concentration in patients with higher psychological tension compared with those with lower tension. However, he was careful to point out that the mean serum precipitable iodine figures for both groups of patients fell within the normal range. Reiss *et alii* (1953) investigated the thyroid status of more than 1000 patients admitted to mental hos-

pitals. Amongst other findings they stated that female patients with objective anxiety states showed evidence of thyroid hyperfunction, more than 60% of this group being in the upper normal or upper borderline ranges. They also claimed that improvement in psychiatric state went *pari passu* with the return of thyroid function to normal. Lastly, Soffer *et alii* (1947) produced thyroid hyperplasia in normal dogs by prolonged adrenaline administration, and noted increased circulating thyrotropic hormone after the same procedure in thyroidectomized dogs.

It has been postulated by Greer (1952) that there may be two distinct thyrotropic factors, one a "growth factor" and the other a "metabolic factor". This would permit the pituitary to control the size of the thyroid gland and the level of its activity in hormone production independently. Such a hypothesis offers a satisfactory explanation for an increase in the size of the thyroid without commensurate over-activity and for the corollary of thyrotoxicosis without goitre, as is occasionally seen. He suggests that secretion of the growth-regulating factor is controlled by hypothalamic centres, and this would provide a mechanism whereby psychic factors could influence the size of the thyroid gland.

Conclusion.

There is evidence that nervous stress and anxiety states can cause an increase in thyroid function, short of producing thyrotoxicosis, and this may be associated with thyroid hyperplasia. As with other precipitating factors in goitre, removal of the cause need not be followed by subsidence of the swelling.

In the 15 cases reported in this paper a goitre appeared within a few weeks of the onset of a severe stress situation, which is circumstantial evidence that the two events were related.

If the possibility is kept in mind, direct inquiry may reveal the presence of stress factors in a higher proportion of patients with sporadic goitre.

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THE ADSORPTIVE CAPACITY OF SERUM PROTEINS IN CONGESTIVE CARDIAC FAILURE.

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IT was shown in a previous communication (Breyer and Radcliff, 1954) that in cases of renal insufficiency the adsorptive capacity of serum proteins is considerably lowered. This finding was confirmed by Axenfeld (1956), whose technique consisted in adsorbing oleic acid onto the serum proteins and estimating the excess unadsorbed oleic acid by its hæmolytic action. The measurements reported in this paper have been estimated by polarography, a method combining high accuracy with simplicity of procedure. Polarography[1] is an electrochemical method invented in 1922 by Heyrovsky but as yet little used in this country. It may be useful, therefore, to give, first of all, a very brief outline of the method itself and of its adaptation to the problem in hand.

Polarography consists in the recording of current-voltage curves, using a dropping mercury electrode (d.m.e.). A schematic representation of the apparatus used is shown in Figure I. C is the electrolysis cell containing the sample to be analysed. One of the electrodes is a mercury pool at the bottom of the cell, the other a glass capillary with a very fine bore, from which mercury droplets issue at regular intervals of about three seconds. The d.m.e. is most commonly connected to the negative pole of the battery, B. Moving the sliding contact of the potentiometer, P, the voltage applied to the cell is slowly increased to about two volts, whilst the corresponding current flowing through the cell is read from the galvanometer, G. When the values of the applied voltage are plotted against the resulting current, so-called polarograms are obtained, an example of which is shown in Figure II. It can be seen that the current increases steeply when a certain minimum voltage has been applied to the cell (B, Figure II) and that it reaches a limiting value at still higher voltages. The resulting diagram is called a "polarographic step". The sudden increase in current is due to the presence in the solution of a so-called "depolarizer", i.e. of a substance which can be either oxidized or reduced at the d.m.e. It can be shown that the magnitude of the current, i.e. the step height, is directly proportional to the concentration of the depolarizer, whereas the voltage at which the step occurs

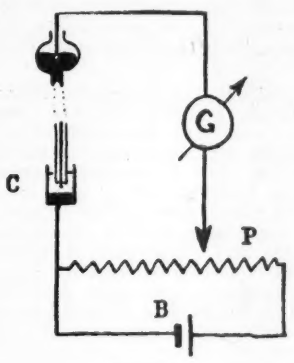

FIGURE I.

A schematic representation of the apparatus for the recording of current-voltage curves, using a dropping mercury electrode. C, the electrolysis cell containing the sample to be analysed; B, the battery; P, the potentiometer; G, the galvanometer.

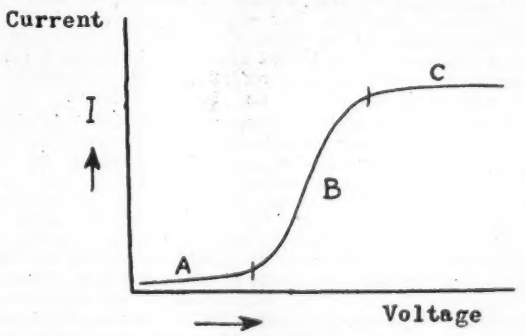

FIGURE II.

An example of a polarogram, obtained when the values of the applied voltage are plotted against the resulting current. A, B, C are the stages in a polarographic step.

[1] For those interested in polarography the following monographs are recommended: Hayrovsky, J., *"Polarographie"*, Springer, Vienna, 1941; Kolthoff, I. M., and Lingane, J. J., "Polarography", Interscience, New York, 1952; Brezina, M., and Zuman, P., *"Die Polarographie in der Medizin, Biochemie und Pharmazie"*, Leipzig, 1956 (English edition to be published shortly).

varies with the chemical nature of the substance. It is thus possible to make a simultaneous qualitative and quantitative chemical analysis by polarography, since the voltage at which the step occurs is an indication of the nature of the substance, whereas measurement of the step height yields a quantitative estimation, provided the apparatus has been previously calibrated with solutions containing the depolarizer in known concentrations.

In sensitivity, polarography vies with spectrophotometry. The concentration range most commonly used lies between 10^{-3} and 10^{-5} molar. Practically no substance is consumed during polarographic analysis: the currents obtained are of the order of a few microamperes; in other words, the amount of substance undergoing the electrochemical change is minimal.

Finally, it should be pointed out that at a given concentration different depolarizers produce different step heights. Other things being equal, the magnitude of the current obtained with a certain depolarizer depends on its diffusion coefficient. Thus, of two depolarizers having different molecular weights, both present at the same concentration and consuming the same number of electrons in the electrode process, the one consisting of smaller molecules will diffuse faster and hence yield a higher polarographic step than the one that consists of larger molecules. This fact is important in connexion with the investigations reported in this article, that is in the study of adsorption phenomena by polarography, as will be shown later.

Many organic dyestuffs yield polarographic steps and hence are amenable to polarographic analysis. If, now, protein is added to the dyestuff solution and the polarogram repeated, it will be found that the step height is considerably lowered.

It has been shown (Breyer, 1938) that this lowering of the step height is due to the adsorption of part of the dyestuff onto the protein. It is obvious that the dyestuff adsorbed onto the large protein molecules diffuses at a much slower rate than free dyestuff, hence the lowering of the polarographic current. Subsequent work (Breyer, Bauer and Radcliff, 1953; Breyer and Bauer, 1953) has shown that the concentration of both free and protein-bonded dyestuff can be easily calculated from the lowering of the polarographic current obtained when solutions containing protein (e.g. plasma or serum) are added to the dyestuff solution. For clinical investigations it is obviously sufficient to observe merely the lowering of the polarographic step height after the addition of a given quantity of serum, without resorting to the calculation of the concentrations of free and bonded dyestuff.

Previous investigations (Breyer and Radcliff, 1954) have shown that sera from patients with renal insufficiency have a considerably decreased capacity for adsorbing the dyestuff, methyl red. It seems most probable that this diminished adsorptive capacity is due to the presence in the serum of a substance, as yet unknown, which is firmly bonded to the protein surface, thus preventing the adsorption of the dyestuff. It should be pointed out that neither any major component of urine nor urinary mucoprotein was found to be responsible for the diminished adsorptive capacity. Estimations of blood urea levels and polarographic results show no relationship whatever; hence, the polarographic investigation is not concerned with that part of the renal function which is responsible for the maintenance of the blood urea level.

The present paper reports the outcome of studies on the adsorptive capacity of blood sera from patients with congestive cardiac failure, suffering from a secondary impairment of renal function.

It was found that polarography represents a valuable additional method for determining the response to treatment. It seems, furthermore, that the new procedure, in conjunction with current methods, permits a more accurate prognostic assessment than that based on conventional methods alone.

Materials and Method.

Commercial preparations of methyl red must be suitably purified before use. The procedure adopted consisted in preparing a concentrated solution of the dyestuff in dilute sodium hydroxide and precipitating the dyestuff by the addition of an excess of hydrochloric acid. This procedure was repeated and the resulting amorphous powder twice recrystallized from aqueous alcohol. The pure dyestuff consisted of dark purple well-defined crystals. Dyestuff solutions were prepared by triturating 0·0888 gramme of the purified substance with a few drops of twice normal sodium hydroxide, diluting with about 10 millilitres of water and washing the resultant solution quantitatively into an excess of borate-citrate-acetate buffer (Pridaux and Ward, 1924) of pH 7·3, contained in a measuring flask of one litre. Filling the flask to the mark with buffer resulted in a dyestuff solution of $3{\cdot}3 \times 10^{-4}$ molar. This solution is liable to show fungus growth after about 10 days, which greatly affects the polarographic step heights. To avoid the necessity of preparing fresh solutions at frequent intervals, it is best to subdivide the bulk solution into lots of about 50 millilitres, to fill them into sterilizing bottles and to sterilize them in an autoclave for half an hour at 120° C. Solutions so prepared were stored in the dark and proved to keep indefinitely.

All measurements were made by diluting 2·5 millilitres of the dyestuff solution with 1·5 millilitres of buffer and recording a polarogram; one millilitre of the serum to be examined was then added to the blank and another polarogram taken. All results reported in this paper are expressed as the ratio of the step height obtained after the addition of serum $(i_d)_s$ to that obtained in the pure dyesuff solution, (i_d), a quantity which we shall call "adsorption index", or "index" for short. The higher the index of a serum, the smaller is its adsorptive capacity. Either serum or oxalated plasma may be used in the test, since the presence of neither fibrinogen nor oxalate affects the results. Thermostatic control to ± 1° C. is quite sufficient for the purposes of the test. The reproducibility is ± 2%, provided blanks are run with every measurement, as just described. The tests should be made within 24 hours after the sample is obtained. Hæmolysed sera yield wrong results and should be discarded.

Details of the polarographic technique recommended for work with protein solutions will be found in a previous communication (Breyer and Radcliff, 1953).

Results.

The adsorption indices of 30 normal sera from males between the ages of 25 and 80 years were determined. They were found to vary between 0·42 and 0·47.

TABLE I.

The Results of the Polarographic Test on Patients with Congestive Cardiac Failure.

After Treatment.	Number of Patients.	Age (Years).		Results.			
					Recovered.		
		Mean.	Range.	Died.	Good.	Fair.	Poor.
Index remaining above 0·5	19	67	53 to 83	8	4	2	5
Index below 0·5	32	72	43 to 86	10	19	2	1

In cases of congestive cardiac failure, index values as high as 0·57 were recorded. In keeping with the finding of Breyer and Radcliff (1954), it was noticed that the results cannot be explained in terms of protein or urea levels. In a number of cases urea clearance and urine concentration tests, as well as sodium, potassium and chloride estimations in the blood, were also made. There was no correlation between the values obtained and the adsorption index. Similarly, no relation existed between albuminuria and polarographic data.

The results of the polarographic test together with other relevant facts are presented in Table I.

Discussion.

It can be seen that of 19 patients with a final index of 0·50 and higher, only four were well at the time of writing; two of these took their discharge from hospital against medical advice and could not be followed up and eight died. Conversely, of the 32 patients with an index below 0·50, 19 responded to treatment with a marked clinical improvement and only 10 died; it should be noted furthermore, that in eight of these the congestive cardiac failure was well controlled and that no signs or symptoms of this condition were evident at the time of their death.

Serial investigations of the effect of the administration of mersalyl on the adsorption index were performed. In 12 patients who were responding to treatment, the index started decreasing 24 hours after an injection of mersalyl, and reached values below 0·5 on the fourth day; in one further patient a second injection of mersalyl was needed to achieve this result. The readjustment of the adsorptive capacity went hand-in-hand with a marked clinical improvement in the patient's general condition. In 19 cases the index remained high in spite of repeated administration of mersalyl for several weeks. These are the cases which generally showed an unfavourable outcome.

Conclusions.

The results indicate first, that patients with a consistently high index in spite of mersalyl medication warrant a cautious prognosis, even when clinical features seem satisfactory; secondly, there is no correlation between polarographic results and blood urea values; also, changes in the adsorptive index are not a consequence of varying serum protein levels, except in cases in which the albumin content is lowered below one gramme per 100 millilitres of serum. Thus, in the present series all serum protein levels were found to be within normal limits, whilst the adsorptive indices varied widely. These findings confirm earlier observations reported elsewhere (Breyer and Radcliff, 1954). Hence, the polarographic method should be applied in conjunction with the usual tests to obtain a reliable assessment of the renal function.

Summary.

The adsorptive capacity of serum proteins in congestive cardiac failure has been investigated polarographically in 51 cases.

It was found that frequently the adsorptive capacity is considerably lowered. The new procedure, in conjunction with current methods, permits a more accurate prognostic assessment than that based on conventional methods alone.

Acknowledgements.

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INDUSTRIAL MEDICAL LEGISLATION AND GENERAL PRACTICE IN VICTORIA.[1]

By N. F. LAIDLAW,[2]
Geelong.

ALL facets of industry are controlled by legislation. Under the heading of "Industrial Medical Legislation" it is intended to discuss only those sections of the legislation with which the doctor is vitally concerned. These include Commonwealth arbitration awards, the *Victorian State Labour and Industry Act*, State Health Acts, and the *Victorian Workers' Compensation Act*. This group may be divided into two parts: first, Acts concerned with safe working conditions, including medical certification on account of illness; secondly, an Act covering compensation payments, including those paid when conditions laid down under the first group have been insufficient to prevent injury or illness.

Safe Working Conditions.

Most Federal awards arise through the Commonwealth Arbitration Commission. These awards prescribe hours of work, rates of pay and certain provisions relating to the safety and the well-being of workers; e.g., in relevant trade awards the employer is required to provide suitable goggles for the operation of emery grinding wheels, gloves for the operation of electric welding equipment, protective clothing for wet process workers, and so on.

The *Victorian State Labour and Industry Act* provides, through industrial tribunals, for determinations which also involve wages and working conditions for employees not covered by Commonwealth arbitration. These generally follow the same pattern. It also lays down provisions for safety, such as the confining of the hair of females operating moving machinery, the limiting of weights to be lifted by females or juniors and the restricting of juniors from the operation of hazardous machinery, and provisions for the inclusion of stairways and exits.

The health Acts prescribe, among other things, measures aimed at the prevention of contamination of food in shops and factory canteens, and also health protection measures in connexion with potentially harmful occupations, e.g., regulations covering spray painting and lead working.

It can be seen that these Acts contain governmental attempts to avert occupational hazard or injury to workers.

[1] Read as part of a symposium on "The General Practitioner in Relation to Industry", at a meeting of the British Medical Association, Victorian Branch, Section of Industrial Medicine, on November 13, 1957.

[2] Chief Medical Officer, Ford Motor Company of Australia.

Medical Certification for Absence due to Illness.

The provisions for paid sick leave are common to virtually all awards and, in general, provide for the payment of wages for unavoidable absence on account of illness to the extent of 40 hours or one week's pay *per annum*, cumulative up to three years. The employer has the right to reject a medical certificate for illness if he is aware of other circumstances concerning the period covered. The onus is on the worker to satisfy his employer that he was, in fact, unable to work on account of illness. Some companies accept statements other than medical certificates to cover single-day absences.

Victorian Workers' Compensation Act.

The *Workers' Compensation Act* was originally designed as an industrial accident insurance scheme, but is now a great deal broader than that, and is becoming broader with each amendment. Under this Act is set up the Board and the State Accident Insurance Office.

The idea of the *Workers' Compensation Act* originally arose in Germany. It was formally passed and put into operation in 1884 by the Reichstag of that day. Strangely enough, the next mention of any *Workers' Compensation Act* was in Western Australia in 1902. The Victorian Act was passed in 1914.

When the legislation was first planned, the Government envisaged that the individual employers would use insurance companies to carry the risk and that the premiums payable would be added to the manufacturing costs. In this way the cost of the scheme would be passed back to the general public. Although the Act stipulates that employers shall insure, no section of the Act requires insurance companies to take the risk, but says that an employer cannot carry his own risk unless already listed by 1946. The general public, other than through its vote at election periods, has no way in which to indicate the extent to which it is willing to carry the burden, and it has no way in which it can stop further broadening of the Act.

The cost of annual premiums payable is related to the type of employment and to accident rates of the previous years. Accordingly, the amount of premium a company pays is to a degree related to the safe working conditions of the factory. This relationship must be accepted now as a diminishing one, as compensation is payable for personal injury—not solely for injury by accident. The 1953 amendment erased the word "accident" from the Act. The term "injury" is defined under the Act as any physical or mental injury or disease or the aggravation, acceleration or recurrence of any preexisting injury or disease; "disease" is defined as a physical or mental ailment, disorder, defect or morbid condition. Legal opinion has it that it is now unsound to discriminate between injury and disease relating to industry.

Diseases and Their Certification Under the Act.

The heading of "diseases under the Act" at first glance tends to lead to confusion in view of the definition just given. However, if any interpretation is possible, I think that an "injury" under the Act would require a time factor related to the onset, or alternatively an incident, whereas a "disease under the Act", which is not to be confused with a disease included in the definition of injury, refers to diseases well established before diagnosis and in which the onset may be classed as insidious.

Fifteen diseases are specified under the Act, e.g., lead poisoning, and are related to the occupations which would give rise to them. The law provides for payment on the certificate of a doctor (*a*) if the worker, as a consequence of disease, is disabled from earning full wages, and (*b*) if death is caused or materially contributed to by any disease in which it is proved that the disease is due to the nature of employment at any time previously.

Disability from disease is treated as an injury, but it differs in that no compensation is payable if the worker has falsely represented himself in writing at the time of entering employment. Under the Act, Workers' Compensation Certificates should be issued to the employer on the death of an individual, when death results from a compensable disease. When the worker contracts a specified disease and has worked in the associated industry within five years, the employer must disprove the claim if there is disagreement. If it is not a specified disease the worker must prove its association to the employment. Confusion, arising as a result of the definition of injury under the Act and its slender relationship to the accepted meaning of the word, becomes exaggerated by the acceptance as an injury of clinical signs of deterioration in established heart disease.

Legal opinion on the matter may be summed up briefly in the following words.

> If the man did not have prior knowledge that a cardio-vascular catastrophe was to take place at work despite his knowledge of the presence of disease, the catastrophe constitutes an injury arising in the course of his employment—not that the employment is a contributing factor.

The employer's liability in regard to an employee's health, therefore, is close to absolute.

Attitudes to the Workers' Compensation Act.

The Medical Practitioner.

The medical practitioner has come to regard the *Workers' Compensation Act* as a static piece of legislation which is occasionally amended, the amendments being relayed to him in due course, usually by word of mouth from a colleague, company representative or a worker. In fact, amendments are frequently made. The last consolidation of the Act took place in 1951, with further amendments in 1953. The earliest amendments were chiefly for the purpose of assisting the machinery of the Act, also to include major policies accepted in other States and countries. The later amendments have been by way of transferring the Act from an accident-insurance scheme to the status of a social service. I believe that the premium figures substantiate this view. Total premiums for Australia paid under *Workers' Compensation Acts* in the year 1948-1949 were £10,000,000, compared with total premiums for 1955-1956 of £25,500,000—an increase at the rate of about £2,000,000 per year. In Victoria the first figures available are for 1952-1953; the State figure then was £5,670,000. In 1955-1956 it was £8,430,000—an increase of £2,760,000 in the four years.

Industry.

Industry today could view workers' compensation payments with a great deal of apprehension, in view of these mounting costs. Companies realize that the effect of government amendments is to consolidate much of what could be regarded as social services into the Act. They realize that the Act is weighted in favour of the worker and there is little relief.

Union Officials.

Union officials, their legal advisers and some politicians have, on the other hand, a different approach. With improvement in the national economy and increased efficiency of industry, stabilization of profits is held to emerge, and, with the onward movement of inflation, this group judges that industry can afford to give a greater share to its workers.

Insurance Companies.

Often the insurance company's margin of profit is expressed as an adjustable percentage of the premium. Victorian State claims for 1953-1954 were £4,990,000, giving a margin of £1,370,000; in 1955-1956 the margin was £1,540,000 on claims of £6,890,000. The insurance company is a sympathetic but financially interested by-stander, supplying the employer with expert legal opinion when necessary.

The Claimant's Responsibility.

The claimant under the Victorian Act has few responsibilities. He must be on a company payroll (this constitutes employment), receiving not more than £2000 *per annum*. Drunkenness or wilfully self-inflicted wounds bar claims. Section 5 of the Act reads: "If in any employment personal injury arising out of or in the course of the employment, is caused to a worker, his employer shall, subject as hereinafter mentioned, be liable to pay compensation in accordance with the provisions of the Act." For all practical purposes, the phrase "out of or" may be deleted, leaving that part of the section to read: "personal injury arising in the course of the employment". I have already mentioned the definition of injury. The term "in the course of the employment" requires further mention. It provides that on any working day in which the worker has attended the place of his employment "the course of employment" covers him: (*a*) during a normal recess so long as no abnormal risk is voluntarily taken (there is no definition of an abnormal risk); (*b*) travelling to and from work; (*c*) travelling to trade school etc., or at such a school; (*d*) travelling for certification or treatment under the Act or in any place for treatment. He is covered under all these conditions provided there is no substantial interruption or deviation, unconnected with employment. Half an hour in an hotel on the way home from work may not be regarded as a substantial interruption. The just needs of the worker are to be allowed for.

Industry cannot claim that an injury resulted from an unauthorized act on the part of the worker, provided the worker explains that it was in the course of his duty. "Do not touch" signs do not lessen the employer's risk under the Act. Hazards should be eliminated or made foolproof.

Medical Certification.

The company is entitled to pay compensation every week in cash unless an order for cheque has been granted. It is also entitled to conduct periodical medical examinations and receive certificates accordingly on any case. If a worker does not return to work after being declared fit by a medical man and if he has already received payments under the Act, the company must notify the worker 10 days in advance of its intention to cease payment and also give him a copy of the medical certificate. Should the worker in this ten-day interval obtain a further medical certificate from another doctor, disagreeing with the first, payments may not be suspended. The company or the worker could take the case to a medical referee. All this procedure is tiresome and often useless in the average doubtful case. My records for the past several years show the average duration of lost-time cases to be seven to eight days. Medical certification need concern only incapacity, partial or total, not diagnosis.

Under Section 27, a workers' compensation medical examination of the injury in its initial stages is performed if the company desires; also the company has the choice of medical practitioner, that is, the certifying medical practitioner does not of necessity treat the patient, but for convenience both functions are usually carried out by the same man. A medical practitioner is defined under the Act; this definition automatically excludes certificates from non-qualified persons. If a medical certificate is given which the company will not agree to accept within six days, application can be made to the Board for a medical referee, who must give a certificate which will be final. A medical referee under the Act is any medical practitioner appointed by the Governor-in-Council.

Summary.

I am aware that I have not covered all aspects of the Acts mentioned. It has been my intention to summarize only the aspects with which the medical practitioner is concerned, and in particular to make mention of the position of the doctor in regard to certification in relation to illness and accident.

THE GENERAL PRACTITIONER—THE EMPLOYEE—THE INDUSTRIAL MEDICAL OFFICER.[1]

By W. F. Cooper,[2]
Melbourne.

In examining the interrelationship of the general practitioner, the employee and the industrial medical officer, the employee is the focal point for services. It is proposed to examine the situations as they may affect an employee in a plant with a full-time or part-time industrial medical service. The worker has a medical adviser in his home environment, who is familiar with his domestic background, and one at work who understands his work life. Let us then examine the common possibilities that arise for integrating the family physician and the industrial medical officer to best serve the health interests of their mutual patient, the employee.

The representative body of the parent B.M.A. stated in 1949 in the promulgation of the Duties and Ethical Rules for Industrial Medical Officers: "It is important that NO opportunity of useful co-operation between the employee's Doctor and the Industrial Medical Officer should be neglected."

When the employee is engaged through an employment office, he will probably be invited to give his work history and reply to such questions as "What is the general state of your health?", "Are there any special considerations you would like (for personal physical reasons) in connexion with your future employment?" and, possibly, "Do you wish to avail yourself of an industrial medical service in placing you in a suitable position?" At this point the production of a note from his personal medical adviser could be of the utmost value in ensuring optimum job placement for the new employee. A summary of permanent or recurrent disabilities and any special considerations requested by his physician, or a note giving his opinion of the fitness of a presenting employee, is always welcome. Our mutual patient will then usually be taken and shown a specific job.[3] Should he provisionally accept the position, the employee will then be taken to the industrial medical department for an examination to determine his relative fitness for a specified type of work.

Here we must break off for a moment and describe how an industrial medical officer can examine a man in terms of a specified job. Before he can assess the man's capabilities for the job, he must assess the requirements of the operation. On taking up his appointment with a company, the medical officer initially engages in a programme of work called "Job Analysis". He draws up a questionnaire, giving him a form of analysis of each job in terms of the physical standards the work unvaryingly calls for hour after hour. Such questions are asked as: "Does the job require concentration? Responsibility? Decision? Are two hands necessary? What are the hand, wrist and finger movements involved?" Questions are asked about the other limbs and systems and physiological functions required, and the environmental factors concerned. Obviously, if an employee can meet the standards called for, he will not develop stress disabilities.

As an example, a questionnaire on a drilling operation was completed and a list of the allowable common disabilities compiled. These allowable disabilities may be handicaps in terms of everyday living, but are not handicaps relative to the work. In this case they proved to be:

[1] Read as part of a symposium on "The General Practitioner in Relation to Industry", at a meeting of the British Medical Association, Victorian Branch, Section of Industrial Medicine, on November 13, 1957.

[2] Medical Director, General Motors-Holden.

[3] A slide was projected showing a bank of four semi-automatic drills with a work table, the fixtures for the parts being drilled and an adjacent basket for these. Note was made of the short sleeves of the operator and of the partial guard enclosure of the jig.

(i) partial or complete deafness in one ear; (ii) colour blindness; (iii) moderate hypertension under treatment; (iv) a cardiac defect with no history of decompensation; (v) obesity; (vi) a below-the-knee amputation with a satisfactory prosthesis or a deformity of one leg; (vii) one or more fingers missing or a deformity of one or more fingers on a secondary hand with good residual grasp and the primary hand intact; (viii) mild nervous fatigue. This means that a man will be safe in this job, provided he does not have more permanent disabilities than these.

Armed with this knowledge of the job requirements, the medical officer clinically examines the man in the usual manner, obtaining his past history, present symptomatology if any, and eliciting any abnormal signs. Investigations usually included in the routine preplacement examination industrially include an assessment of the worker's visual skills.[1] Additionally, hearing levels are estimated by the use of an audiometer and are performed routinely to measure any hearing loss as expressed in decibels in the usual frequency ranges from 125 to 8000.

At the conclusion of this examination, the prospective employee is given a verbal summary of his health status and the record may well serve as a good baseline for future comparison and inquiries by his own doctor. When any pathological abnormality, frequently symptomless, is noted, it is the industrial doctor's duty to advise the employee to see his own doctor and, when authorized, to disclose the findings, usually via a letter taken by the patient to his own doctor. Opinion is given to the employment office merely in terms of restriction or non-restriction of work; no diagnosis is communicated, unless with the express wish and consent of the employee.

At the time of induction of the new employee, active immunization against tetanus may be offered to new employees. A note from the family physician indicating the employee's degree of immunity would indeed be helpful, and conversely on receipt of the second tetanus toxoid it is good practice for the industrial medical department to issue a certificate to the employee for presentation to his personal medical attendant should the position of future tetanus coverage arise. Also at the time of induction a chest X-ray examination is usually offered, and if one has been made recently a copy of the report from the doctor may easily suffice.

Personal protective equipment is offered to employees when they are inducted. The personal fitting of armour plate, that is, industrially toughened lenses, is done with each batch of new employees. This glass will crumble rather than splinter, but, of course, stands up to much heavier impacts than do soft prescription lenses. Personal protection against acoustic trauma is offered in the form of ear plugs, which when, and if, correctly worn, reduce the incident decibel level by some 30 decibels—a figure which in all usual industrial environments results in a perfectly safe margin and gives complete protection against permanent hearing loss from acoustic trauma. Many effective respirators with varied filters are available against pneumoconiosis-producing dusts such as silica and asbestos; and they are effective also against chronic acid mist, nuisance dusts and toxic dusts for short periods. Lead, cadmium, arsenic and chromium exemplify this group. A foundry worker in a potentially hazardous moulding job may be garbed in glasses, long-sleeved shirt, leather or aluminium and asbestos apron, gloves, leggings and safety boots with steel toe-cap inserts.

If our employee settles down in the selected job quietly without accident or illness, then such preventive procedures as an annual chest X-ray examination and influenzal inoculations will probably be offered to him *plus* an annual periodic examination whether he is a factory hand or a senior executive. Workers in hazardous occupations may, of course, need statutory examinations more frequently. These examinations again evaluate his health status and relate to his work, and any further abnormal symptoms and signs will again initiate a note to his own medical adviser. Should he become ill or have an injury at any time and report to the medical centre, he may, on request, be checked and investigated within the limits of the facilities available in the medical department. When a diagnosis is established, decision is made as to whether his illness or accident is of occupational origin and opinion may be offered to the employee. If he is able to stay at his work for the remainder of that day, treatment may be entered into, but very strictly only for that day.

A full report, setting out the employee's condition and the results of any investigations made, is, of course, of great value to a busy practitioner, and a diligent industrial medical officer will initiate, with the assistance of his staff and centralized facilities, investigations which may be of considerable help and may subsequently be time saving to the practitioner to whom he is referred. It is usual to offer continued observation of a daily nature when the employee is able to return to work, should his doctor advise and request this in a reply. This offer is usually taken advantage of, especially with assistance in investigational work. If there are special facilities and equipment for continuing treatment at the place of employment, the industrial medical officer may arrange for such treatment, of course with the approval of the doctor or hospital concerned.

Requested rehabilitation and advised job transfers will be entered into when the patient is able to return to work after an accident or illness. A note from the attending doctor, indicating the extent of his temporary or permanent disabilities, is of great value, because the industrial medical officer, armed with the family doctor's assessment, must again selectively place their patient in a position which is within his capabilities.

As one final phase in his job analysis programme that we spoke of earlier, the industrial medical officer puts all the jobs into categories in terms of the allowable disabilities and so may draw up lists of jobs within the abilities of the various workers with physical handicaps. This enables him to advise effectively in rehabilitation work. Industrial blindness is classified as residual visual acuity in the best eye of 20/70 up to 20/180 or as limitation of the field of vision, such that the widest diameter in the visual field subtends an angle no greater than 20°.

A one-armed operator was not handicapped when working a horizontal multi-spindle drill operating on cylinder pistons. It required one arm only, having single foot and hand controls, although it was not especially engineered that way. Another operator who had lost all the fingers, all the thumb, and the distal portions of the metacarpals of his left hand, was successfully placed on a cylinder block-grinding operation. This operator pointed out how pleased he was that he was placed in manual work (rather than on a light "fiddly", as he described it), doing bench assembly jobs that previously he had been unable to carry out because of the absence of grasping power in his amputation stump. Two men were successfully placed with a pneumatic riveting unit; one had had a hand amputated after a press accident and the other was totally blinded, but has established better than 100% efficiency in a milling and drilling operation on differential casings. He actually uses two machines on this job and has asked permission to use two more close by because, as he aptly phrases it: "Why do supervisors think blind people do not have any legs and so expect them to stand up at one machine all day when they are eager to move around several?"

The earliest referral of such handicapped people by the medical man attending to the industrial medical officer, preferably well before they can resume any work, allows time to investigate suitable jobs. When a practitioner has doubt as to the ability or not of a patient to work, then advice will always be gladly given by an industrial medical officer to the physician managing the case on any aspect of certification, placement and rehabilitation.

[1] A slide depicting an industrial sight screener known as the "orthorate", which measures vertical and lateral phorias, both near and far, and stereopsis and colour, together with visual acuity for both eyes and each eye individually at optical equivalents of eight metres and thirteen inches, was shown. These distances are from the lenses of the instrument. The acuity tests when decoded correspond to Snellen values.

Thus, in conclusion, we see that when, and probably only when, full and early communication is established between the physician attending the employee-patient and the industrial medical officer on a sound ethical basis at the points of placement, periodic examination, convalescence and rehabilitation can we hope to jointly act in his best interests. If we do so we may avoid collectively great and really unnecessary and unwanted national wastage of our Australian working team.

THE PROBLEMS OF GENERAL PRACTICE AND INDUSTRY.[1]

By M. O. KENT-HUGHES,
Moonee Ponds, Victoria.

BEFORE any of the problems concerning the relationship between general practice and industry can be solved, we must have closer liaison. Representatives from both groups should meet and discuss the problems of mutual interest.

I have prepared this short paper as a series of questions, with the intention of being provocative and asking for answers.

1. Does the general practitioner have adequate knowledge of the conditions under which his patient works?

In general, I think the answer is no. A doctor learns a great deal about his patient from visiting the home, and he could learn a great deal more if he visited his place of work.

Undergraduate education in industrial medicine is not adequate. Only two lectures are given in this State, and that is a small contribution. Conducted tours from representative sections of industry would be of value, and should be included in the curriculum before the graduate commences practice. The undergraduate training period is already overloaded, and radical recasting of the curriculum would be necessary before practical training of this nature could be included. An alternative suggestion, I put forward, is a three months' general practice course for new graduates prior to their commencing general practice. Such a course should be essentially practical and could include apprenticeship to general practitioners, practice management instruction, tours of institutions not attended in undergraduate days, public health tours and preventive medicine study and further instruction in general medicine and tours of industry.

2. Should the industrial medical officer treat employees?

Medical examination to determine fitness for work and treatment of emergencies is accepted B.M.A. policy, but treatment by industrial medical officers apart from this is not.

Industry is realizing that good health aids production. By providing a free medical service, firms consider they are assisting in maintaining good health, reducing time lost in attention, and giving an added attraction to their employees. In some cases, I understand employees make a per capita payment for this service. Capitation medical service is now contrary to B.M.A. policy, and I think that any doctor participating in such a service is not playing the game by his colleagues. I consider the time has come to determine to what extent treatment should be given, if any. Is the employee to have two doctors, one at home and one at work? If so, then such must be accepted policy, and there must be complete cooperation and frequent contact between the two. To have it otherwise means antagonism, and the unethical and undesirable position of a patient being treated by two doctors without the knowledge of each other's treatment. The freedom of choice, of course, must be given to the patient, but freedom here is rather an anachronism when one service is free, provided by the boss and available during working hours without penalty.

3. What is going to be the effect of the last *Workers' Compensation Act* on general practice?

Under this Act, industry is held responsible for almost any illness or injury contracted by the worker from the time he leaves his home till he returns. Present indications are that before long industry will be paying some 25% of a practitioner's income direct to the practitioner.

What will industry's reaction be? Will industry set up its own medical service? If it does, will the patient have adequate protection when it comes to claims? What will our reaction be?

If pensioner and repatriation services cover 15% and are added to the above-mentioned 25%, then the general practitioner would be receiving 40% of his income directly from a third party. The dangers attendant on such a situation should be fully appreciated.

4. Who should treat the victims of industrial accidents—the industrial medical officer, the general practitioner or the specialist?

To provide the best medical service for industrial accidents, I consider the following requirements must be taken into account: (i) adequate facilities, with room space and equipment; (ii) situation close to place of work and close to patient's home; (iii) medical personnel of a patient's own choice, and ones adequately qualified to treat his injury.

To meet these requirements it would be necessary to set up numerous industrial centres throughout the suburbs and city. These centres would need to be staffed by interested general practitioners in the area and by attending specialists. The centres should be run as individual cooperative concerns with a common policy. With cooperation between the centres, the patient could receive emergency treatment, and treatment whilst at work at a centre near his place of work, and at a centre near his home when away from work, where his own doctor could attend him. The centres could provide a means for close cooperation between industrial medical officers, general practitioners and specialists, and for industry a large saving in travelling costs and loss of man hours.

Would such an organization be practical? I think the answer is definitely yes. There are already numbers of medical groups and clinics with reasonable facilities which could immediately be brought into this scheme. Individual practitioners would need to cooperate to form new centres. The essence of this suggestion is to replace the present haphazard method by cooperative organization in order to eliminate loss to industry of man hours and unnecessary travelling expenses, wasted travelling time and inconvenience to patients. General practitioners and specialists should work together in groups and not in opposing competitive camps.

5. What happens to the worker who is marked fit for limited duty?

Is it not very often the case that a request is made to the doctor to certify a worker as unfit till he is fully well. Many thousands of man hours would be saved, convalescence would be shortened and insurance premiums could be reduced if industry made a determined effort to use the limited duty workers. A partially disabled worker either idles his time away and becomes less efficient or illegally takes on a temporary job he can do. He will not declare it or he may lose his permanent job. From a recovery point of view his illegal action is the preferable one of the two choices.

6. Are the present certification arrangements satisfactory?

I have no hesitation in saying no. Practitioners are sometimes to blame for issuing unsatisfactory certificates, but industry is also to blame for requiring unnecessary certification and often encouraging false certification.

The following are two examples in which I consider industry is to blame. The worker has been absent two

[1] Read as part of a symposium on "The General Practitioner in Relation to Industry", at a meeting of the British Medical Association, Victorian Branch, Section of Industrial Medicine, on November 13, 1957.

days from work because of a short illness. He did not require medical attention or possibly attention could not be obtained at the time because of its minor nature. On his return he is told he must obtain a medical certificate, although he has recovered from his illness. Surely his employer should do his own cross-examination and not use the doctor's time. Of what use is a medical certificate that states that the patient said he had had a feverish cold? Another example is when a worker is told he has sick leave due and he had better obtain a medical certificate or he will miss out. This is a common story from some government concerns. The shrewd person concocts a good story that bluffs the doctor, or simply attends a cooperating practitioner, whilst the honest person tells the true story and misses out and feels unfairly treated. There are many borderline cases, such as chronic arthritic sufferers, who are hard to assess.

I suggest there is an easy solution to reduce sick-leave absenteeism and to relieve the profession of these irritating requests. Sick leave should be on a reduced rate of pay or a bonus should be granted to those who do not "take it out". The profession has had a great deal of unnecessary certification thrust upon it, and industry should be reviewing its own position in the matter and solving its own problems, which it itself has created, or should tackle the politicians if they are to blame.

TINEA CAPITIS IN SOUTH AUSTRALIA: A PRELIMINARY STATEMENT OF CULTURAL FINDINGS.

By G. F. DONALD,
Adelaide.

THE laboratory investigation of fungous infections of the skin and its appendages has received little attention in the Australian medical literature. Table I sets out the information previously recorded in this country with regard to the superficial fungous infections of the hairy scalp. In discussing these infections, the terms "ectothrix" and "endothrix" are used to describe the arrangement of fungal spores when infected hairs are examined under the microscope, "ectothrix" referring to the external sheath of spores which is seen in certain cases in contradistinction to "endothrix" infections, in which the spore formation is intrapilary. The appearance and position of the spores thus give an important guide to the type of invading fungus, but species differentiation is possible only by means of cultural methods. However, in all cases the matrix of the hair is invaded by fungus mycelium, as has been emphasized by the fundamental work of Kligman (1955), and it is well known that the diagnosis of fungous disease can be simply made by microscopic examination of skin scrapings, nail clippings or hair fragments after they have been soaked in an alkaline solution. Indeed, Mancy (1952) has even stated that cultural methods do not increase the percentage of positive findings. It may therefore be asked why cultures become an important part of the laboratory investigation of fungous diseases.

The species of dermatophytes which affect the human epidermis have widely differing abilities to parasitize their hosts, and also vary in such characteristics as the degree of host response provoked and the ability to infect other animals. With regard to tinea capitis, cultural identification is of great importance in any community in which more than one species is present, and all workers are agreed that such is the case throughout Australia.

In Australia the majority of cases of tinea capitis are due to the zoophilic fungus *Microsporon canis*, a parasite of domestic animals such as cats and dogs as well as of man, which is responsible for more than 70% of the infections seen in humans. With all zoophilic fungi the natural history of the clinical disease is for spontaneous cure to ensue within a relatively short period of time; most patients with *M. canis* infections are cured within a period of three to four months. The infection is characterized clinically by one or more sharply demarcated plaques, manifesting a variable degree of inflammatory reaction, and in which practically all hairs are involved, showing a green fluorescence of the hair shaft when examined under filtered ultraviolet light. However, not all cases follow the classic pattern: the plaques may be very numerous, showing psoriasiform scaling with slight hair loss, or the scalp may show only scattered involvement of the hair follicles, producing a diffuse partial alopecia, and a fluorescence which varies from bright green to dull white. Many of these cases clear within six months, but persistence for more than 12 months is well known, and in such atypical cases a correct assessment can be made only when the species has been identified by culture. The most commonly used medium is based on Sabouraud's dextrose-agar formula, but when difficulties are encountered in the laboratory identification of an isolate, a number of specialized mycological techniques are employed to demonstrate the characteristics of a species.

The frequency and classification of the fungi responsible for the majority of cases of tinea capitis are less well evaluated. Table I shows the great variation between the available published results. One important factor which may play a part is the influence of climate, because throughout the world there is a trend towards the pre-

TABLE I.
Analysis of Published Reports of Identified Laboratory Cultures in Australia.

Author.	Place.	Date.	Number of Cases.	Microsporon (Ectothrix).			Trichophyton.			
							Endothrix Group.		Ectothrix Group.	
				Canis.	Audouini.	Gypseum.	Tonsurans.	Violaceum.	Mentagrophytes.	Rubrum.
Mancy	Melbourne.	1952	68	46	19 (dysgonic)	—	3	—	—	—
Durie and Brown	Sydney.	1949 to 1953	84	63	6	3	10	—	—	
Durie	Sydney.	1953 to 1955	38	27	1	8	—	1	1	2
Sharp	Sydney.	1948 to 1950	More than 120	120	—	—	5 or 6 in whole series.			
O'Donnell ..	Perth.	1951	Not stated.	50%	50%	—	—			
Nothling ..	Brisbane.	1951	Not stated.	5%	—	—	95%			

dominance of particular species under similar climatic and geographic conditions. However, while such a trend may exist in Australia, this and many other problems of fungous ecology must remain unanswered until more mycological data is available.

M. audouini is an anthropophilic fungus which produces clinical disease similar to that caused by *M. canis*, except that there is little tendency to spontaneous cure prior to puberty. This infection is restricted to humans in the great majority of cases and flourishes in cold climates. Walker (1950) has discussed a dysgonic form in which the amount of fungal growth present on culture media is minimal, and the variety can be easily overlooked unless such a possibility is remembered. *M. gypseum* has been isolated from specimens of soil in Australia (Durie and Frey, 1955) and other parts of the world; on the infrequent occasions when it affects humans it produces violently inflammatory lesions.

The remaining fungi are members of the genus *Trichophyton*, of which the group producing endothrix spores is the more important, the commonest member being *T. tonsurans*. The taxonomic status of this species is confused and such names as *T. epilans*, *T. crateriforme* and *T. sulfureum* would appear to be synonyms and to describe the inconstant variation in the macroscopic appearance of cultures. Such variation is common, not only in isolates from different patients, but also in a series of cultures and subcultures made from the same patient. Howell *et alii* (1952) favour the designation *T. tonsurans* (Malmsten, 1845) for this species because of priority, and this is in agreement with the earlier writings of Carrión and Silva (1944) and Kligman and Constant (1951). The results of Mancy (1952) and Durie (1956) in Table I have been tabulated in accordance with this concept. Clinically, *T. tonsurans* behaves as an anthropophilic fungus, producing resistant infections which commonly show patchy ill-defined involvement of the scalp and fail to exhibit the green fluorescence which is usual with infections caused by the *Microsporon* group. *T. violaceum* produces a similar clinical picture, but is renowned for even greater recalcitrance. The latter fungus has been widely distributed throughout eastern and southern Europe, particularly where low living standards and poor personal hygiene are the rule, and elsewhere sporadic cases are seen mainly among migrants.

At the Royal Prince Alfred Hospital, Sydney, it has been customary to identify by culture all suspected cases of fungous disease. In a series of cases which were investigated personally during the years 1952 and 1953, pathogenic fungi were cultured from 81 cases of tinea capitis. Of these 81 cultures 65 were identified as *M. canis*; *T. tonsurans* was present in 15 cases, and *T. violaceum* in one. The last was found in a culture referred for identification from a patient who was not under treatment at the hospital.

Prior to 1954 routine cultural work was not done in South Australia, although the Adelaide Children's Hospital had made some cultures in suspected cases of tinea capitis. The practice of making cultural as well as microscopic examinations did not become a routine one at the Adelaide Children's Hospital until 1956, although since 1954 the Institute of Medical and Veterinary Science has extended its mycological services to provide for cultural investigation of all suspected material sent to it for examination. Routine fungal cultures have been performed personally in private practice since August, 1954, and at the Adelaide Children's Hospital since July, 1956. Up to December, 1957, 142 cases of tinea capitis had yielded culture growths which were identified as pathogenic fungi, 125 being *M. canis*, 15 *T. tonsurans*, and two *T. violaceum*.

Although the present study is only in its preliminary stages, an important conclusion can be drawn. Clinical impression had suggested that endothrix tinea of the scalp was rare in South Australia, but the present study has shown that endothrix trichophyta constitute more than 10% of the cases seen. This group is important because of the ill-defined changes produced on the scalp, and as there is little tendency to spontaneous cure the most energetic and meticulous medical care is required. Because of the frequency of this group in South Australia a fuller discussion of the problems of diagnosis and treatment is to be published elsewhere (Donald, 1958).

Among other objects of the present survey is the study of exotic species of fungi which are common in England and Europe and which might be expected to be present among recent migrants. Particular attention has been given to the problem of *M. audouini* infections, and it is notable that in a consecutive series of more than 200 cases of tinea capitis which have been investigated personally, no infection due to this fungus has been detected. In view of the reports of Mancy and Durie this discrepancy requires consideration. Mancy has recorded the highest percentage of *M. audouini* cultures (25%), and he noted that these were all of the dysgonic type. Since the inception of this study in 1952 a careful watch has been kept for the appearance of dysgonic colonies of *M. audouini*, all cultures being held for two months and minutely examined before being discarded as negative. In the six-year period under consideration, in addition to the 204 cases of proven *M. canis* infection already mentioned, nine cases of tinea capitis were considered to be microsporon infections on the basis of the clinical features, the green fluorescence of the infected hairs, and the presence of small round spores in a mosaic arrangement about the hair shaft. However, in no case was there evidence of mycelial growth in the culture tubes. A further seven patients showed clinical features

TABLE II.

Analysis of Identified Laboratory Cultures, Personal Series.

Date.	Place.	Number of Cases.	Microsporon (Ectothrix) Canis.	Trichophyton (Endothrix).	
				Tonsurans.	Violaceum.
1952 to 1953	Sydney.	82	67	14	1
1954 to 1957	Adelaide.	142	125	15	2

suggestive of microsporon infection together with green fluorescence of infected hairs. However, both direct microscopic and cultural studies gave negative results, and these cases remain unclassified, although in two instances siblings suffering from tinea at the same time yielded cultures of *M. canis*.

The reason for the discrepancy in the results of fungous cultures published in Australia is unknown and must await further mycological study. It would seem that cases of tinea capitis seen in New Zealand follow the trend which is present in Australia. Fox and Rush-Munro (1953) reported nine cases of *T. tonsurans* infection of the scalp in Auckland during 1952 and 1953, while Marples (1951), in an investigation of 200 cases of tinea capitis in Otago during the years 1947 to 1950, obtained 186 positive cultures, composed of 162 *M. canis*, eight *M. audouini*, 13 *M. gypseum*, and two cultures of *Trichophyton*. She adopted the following as criteria for the diagnosis of *M. audouini*: scaling non-inflammatory lesions, with very slow response to local treatment; green fluorescence of infected hairs; and the presence of small ectothrix spores when examined microscopically. With regard to the cultures, she noted slow-growing colonies with little pigment formation and failure to produce macroconidia at any stage. She cautiously stated that these eight infections appeared to be due to *M. audouini*, but in view of the prevalence of *M. canis* in the area and the absence of epidemic ringworm, it could be suggested that they were caused by atypical strains of *M. canis* with poor ability to produce macroconidia.

There has been no record of epidemic ringworm due to *M. audouini* in Australasia, and it is likely that experience will show that the fungus does not flourish in Australia or New Zealand, in parallel with the findings in many countries enjoying a similar climate. However, it is to be expected that recent migrants carrying this and other exotic fungi have been treated in this country, although

the mycological studies published in Australasia do not state the racial origins of the patients investigated.

In this personal series only two cases of exotic infection are known with certainty. One Italian boy with *T. tonsurans* infection had scalp lesions present for two years before he left Trieste, and a Greek girl with *T. violaceum* had clinical signs on her body and scalp for six months before she arrived in Australia.

The Adelaide Children's Hospital provides the only dermatological out-patient service in Adelaide for public patients under the age of 12 years, and it is this group which presents the most fruitful opportunity for mycological studies. It is hoped that further investigation may give information on many epidemiological and ecological problems of fungous infections about which no information is at present available in the Australian literature.

Summary.

The mycological investigation of the superficial fungous diseases of man in Australasia is reviewed, with particular reference to tinea capitis. A preliminary statement is made of the results of routine cultural studies conducted in South Australia in the period 1954 to 1957, and the need for further study is stressed.

Acknowledgements.

This study would never have begun at the Royal Prince Alfred Hospital, Sydney, but for the help and cooperation of Dr. E. F. Thomson, Fairfax Institute of Pathology, and of Dr. Miles Havyatt, who was in charge of the patients investigated in the dermatological out-patient department.

Dr. B. R. V. Forbes, School of Public Health and Tropical Medicine, Sydney, has helped in the identification of difficult cultures and has given much good advice.

In Adelaide the cooperation of the staff of the Institute of Medical and Veterinary Science has simplified many problems. In addition, all culture media have been obtained from this Institute, which has meant a standardization of all materials for cultural investigation. This work has been further facilitated by my appointment as an honorary research assistant at the Institute.

Dr. K. V. Sanderson, dermatologist to the Adelaide Children's Hospital, has made it possible for me to investigate all patients with suspected tinea infection reporting to the dermatology clinic.

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Reports of Cases.

A CASE OF MULTIPLE MYELOMATOSIS PRESENTING AS CONGESTIVE CARDIAC FAILURE.

By F. G. SILBERBERG, M.B., M.R.C.P. (London),
Melbourne.

MULTIPLE MYELOMA is not a common disease. During the past eight years at the Alfred Hospital, Melbourne, there have been only 23 cases. In every case the diagnosis was made either by sternal puncture during life or at autopsy. The classical presenting symptom of multiple myeloma is pain in bones, or the onset may be characterized by anæmia, fatigue and general weakness. Of the Alfred Hospital cases, in only one were signs of heart failure present, and these were accounted for by the presence of a valvular lesion (luetic aortic incompetence). Although heart failure is mentioned as a complication and a cause of death in an extensive review of multiple myeloma by Lichtenstein and Jaffe (1947), I believe that it is rare for heart failure to be a presenting sign and symptom of the condition. This case is therefore published as an illustration.

Clinical Record.

The patient, a woman, aged 60 years, was first seen in March, 1957, when she had a seven weeks' history of palpitations, tachycardia and increasing dyspnœa. Her memory had been deteriorating. There were no other relevant symptoms. She had been doing a clerical job up to the time of her illness. She had been treated with bed rest and digitalis, with no improvement in her condition.

On examination she was a pale but well built woman. The pulse rate was regular at 120 beats per minute. The blood pressure was 145/60 millimetres of mercury. The jugular venous pressure was raised four inches. The left lobe of the thyroid was palpable. The extremities were warm and there was minimal sacral and ankle œdema. The apex beat was in the fifth left intercostal space, five inches from the mid-sternal line. There was a gallop rhythm and a soft systolic bruit heard in all areas. Crepitations were heard at both lung bases. The liver was palpable three fingers' breadth below the right costal margin and the spleen was just palpable. The central nervous system was normal. There was heavy albuminuria.

Investigations.

The following investigations were made.

An electrocardiogram revealed a sinus tachycardia and digitalis effect.

An X-ray examination of the chest showed slight cardiac enlargement of no particular pattern. The lungs showed moderate vascular congestion, with a probable minimal effusion at the left base.

A full blood examination gave the following results: the hæmoglobin value was 9·2 grammes per 100 millilitres; leucocytes numbered 8000 per cubic millimetre, myelocytes 320 per cubic millimetre, and plasma cells 180 per cubic millimetre. The platelets appeared reduced in number. The erythrocyte sedimentation rate was 60 millimetres in one hour (Wintrobe). These findings suggested the diagnosis of leucoerythroblastic anæmia.

The total serum protein content was 12·4 grammes per 100 millilitres (albumin three grammes per 100 millilitres and globulin 9·4 grammes per 100 millilitres, of which the γ globulin accounted for 7·3 grammes per 100 millilitres) determined by the Biuret method, which gives the normal albumin/globulin ratio as 1·3 : 1·0. The electrophoretic pattern, taken on March 8, showed that the protein which moved in the γ position appeared to have the characteristics of a macroglobulin. A protein which moved with the same mobility on paper was present in the urine. The heat test for Bence Jones protein in the urine gave a positive result.

Liver function tests made on April 5 gave the following results. The prothrombin concentration was 45%. The total serum protein content was 13·0 grammes per 100 millilitres (albumin 1·2 grammes per 100 millilitres and globulin 11·8 grammes per 100 millilitres) (Biuret method). The serum alkaline phosphatase content was four units and the serum bilirubin content was 0·6 milligramme per 100 millilitres. The cephalin flocculation test gave a ++++ result; the sulphate turbidity test gave a value of 38 units.

The bleeding time was two minutes; the clotting time was eight minutes (Lee and White), and clot retraction was normal after two hours.

A bone marrow biopsy showed that erythropoiesis and myelopoiesis were markedly depressed, and that megakaryocytes were scarce. Approximately 60% to 70% of the cells were "myeloma" cells, many of which had several nucleoli. These findings confirmed the diagnosis of multiple myeloma.

Serum electrolyte values (milliequivalents per litre) were as follows: sodium, 130; potassium, 4·5; chloride, 98; bicarbonate, 18; protein, 30. The blood urea content was 135 milligrammes per 100 millilitres.

An X-ray examination of the skull showed that multiple areas of rarefaction were present scattered over the vault, the appearances being strongly suggestive of multiple myeloma.

The blood Wassermann test gave a negative result.

The total urea excreted in three hours was 3·5 grammes; urea clearance was 60% of the normal average (Foweather).

Microscopically, there were no cells in the cerebro-spinal fluid. The protein content was 60 milligrammes per 100 millilitres; globulin was present; chloride equivalent to 780 milligrammes of sodium chloride per 100 millilitres was also present. The colloidal gold reaction test gave a positive result, with a paretic curve.

In the congo red test, 80% of the dye injected was present in the circulation after 60 minutes.

Course.

The patient was treated with digitalis, salt restriction and diuretics, but made no significant response. Her tachycardia persisted and she remained in a state of congestive failure. She was given one pint of packed blood cells. Her memory showed further deterioration. She was given a course of urethane for 12 days, with no alteration in her clinical state or blood picture. She died suddenly, 24 days after her admission to hospital.

Autopsy Report.

The heart weighed 12 ounces. There was no pericardial, myocardial or valvular abnormality. A small subendocardial hæmorrhage was present on the wall of the left ventricle. There was mild coronary atheroma only. Both lungs were very congested. There was no evidence of amyloid disease. The kidneys showed no obvious abnormality. Many punched-out areas of softening were found throughout the marrow substance. The mesenteric lymph nodes were enlarged and calcified. There was an area of infarction in the brain.

Microscopically, the kidneys, tongue and heart were normal in appearance; the liver was congested; the spleen showed a slight increase in plasma cells; the bone marrow showed diffuse infiltration with plasma cells.

Discussion.

The diagnosis of this patient's symptoms on her admission to hospital was congestive cardiac failure of uncertain ætiology, possibly myocarditis. The diagnosis of multiple myeloma was suspected on the report of a routine blood examination, which showed myelocytes and plasma cells; it was confirmed by examination of the bone marrow, the appearance of which was characteristic of the condition. The actual cause of her heart failure was never adequately explained, unless it was secondary to anæmia and hepatorenal failure; nor was it clear why her heart failure failed to respond to treatment. There was a moderate fall in venous pressure and some alleviation of her dyspnœa, but this may have been due to bed rest. Renal failure was manifested by a raised blood urea level and a poor urinary output, despite an adequate intake. The poor renal function apparently accounted for the lack of diuretic response, as her electrolyte pattern was not grossly disturbed. Her anæmia failed to respond to heart failure therapy, to blood transfusion or to the exhibition of urethane. Her sudden death was apparently due to cerebral infarction, but there was no clinical evidence of other thrombotic phenomena, and her clotting time was not diminished. Her progressive mental deterioration was apparently due to her uræmic state. There was no evidence at autopsy of cerebral atherosclerosis or cerebral atrophy.

Summary.

A case of multiple myeloma is described in which the disease presented with signs and symptoms of congestive cardiac failure, which did not respond to standard therapy for heart failure. The classical symptom of multiple myeloma, bone pain, was absent.

Acknowledgement.

My thanks are due to Dr. M. C. Davis, under whose care this patient was admitted to hospital, for permission to publish this case.

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FAVISM IN WESTERN AUSTRALIA.

By E. A. V. BROOKS, G. A. JAMES AND L. A. STUBBER,
From the Princess Margaret Hospital for Children, Perth.

FAVISM, a disease occurring mainly in people of Mediterranean extraction, had not been reported in Australia until the present case was diagnosed. The term favism refers to a hæmolytic anæmia associated with the ingestion of broad beans or with the inhalation of their pollen. The disease is common in the Mediterranean islands and the countries bordering the Mediterranean Sea, the inhabitants of Sardinia being particularly susceptible. As the broad bean is eaten commonly in Australia and the number of susceptible migrants is increasing, more patients with this disease will probably now be encountered.

Clinically, the disease, which occurs most frequently and more severely in children, is characterized by the acute onset of hæmolysis with jaundice and often hæmoglobinuria. After inhalation of the pollen of the bean flower the onset of the condition is very rapid, sometimes leading to collapse within a few minutes. Inhalation usually produces a milder disease without hæmoglobinuria, but severe cases, some even resulting in death, have been recorded (Crosby, 1956). After ingestion of the bean there is a delay of from five to 24 hours before the onset of symptoms, whose severity is related to the degree to which the beans have been cooked. The duration of the attack is usually from two to six days, and a fatal outcome is almost entirely confined to children under six years of age, in whom the mortality is about 8% (McCrae and Ullery, 1933). The following case report illustrates most of the classical features of the disease.

Clinical Record.

The patient, a girl aged three years, first presented at the Princess Margaret Hospital for Children, Perth, in October, 1955. On the day preceding her admission to hospital she had complained of headache and had experienced slight coryza. Early on the morning of her admission to hospital she woke complaining of central abdominal pain and shortly afterwards began to vomit. The vomiting persisted throughout the day, and her com-

plexion was noticed to alter. The urine was described by the relatives as having been port wine coloured, the colour being most marked in the early morning. A history of broad bean ingestion was specifically sought on this occasion, but was not forthcoming owing to language difficulties. On examination she was pale and icteric. Her temperature was 103° F., her pulse rate was 140 per minute, and her respirations numbered 28 per minute. The spleen was not palpable, and no other abnormal physical signs were detected. The urine was dark red in colour with a quantity of macroscopic white sediment.

Laboratory Investigations.

The hæmoglobin value was three grammes per 100 millilitres; erythrocytes numbered 850,000 per cubic millimetre; leucocytes numbered 11,500 per cubic millimetre, 76% being neutrophils, 20% lymphocytes and 4% monocytes. The red cells showed anisocytosis and polychromasia, with occasional fragmented cells and poikilocytes. One myelocyte was seen. The proportion of normoblasts was one in 8000 red cells; the reticulocyte count was 8%. The erythrocyte sedimentation rate (Westergren) was 40 millimetres in the first hour. No sickling of red cells was demonstrated on anaerobic incubation. Osmotic fragility tests gave normal results; a direct Coombs test gave negative results. The serum bilirubin content was three milligrammes per 100 millilitres. The patient's cells were not hæmolysed by normal serum at an acid pH. A hæmolysin was demonstrated in the undiluted serum, active only at 37° C. and pH 6·5, lysing both her own and normal cells. No cold agglutinin or cold hæmolysins were present. The Wassermann reaction, Kahn and Kline tests gave negative results.

Examination of the urine gave the following results: there was a small amount of albumin; two red blood cells and 12 leucocytes per cubic millimetre were present; the benzidine test gave a strongly positive result; the presence of hæmoglobin was shown spectroscopically; bilirubin was present; urobilinogen was present to a dilution of one in 20.

An X-ray examination of the skull, long bones and hands showed no abnormal features.

Treatment and Progress.

She was given a transfusion of 350 millilitres of blood, which resulted in a marked improvement in her general well-being and appearance. Two days after the transfusion her hæmoglobin value was 8·5 grammes per 100 millilitres, and one week after the transfusion it was 9·5 grammes per 100 millilitres.

Two days after her admission to hospital the urine still contained bilirubin, but the benzidine test gave a negative result, and urobilinogen was present only to a dilution of one in 10; 150 red blood cells and 50 leucocytes per cubic millimetre were present. Seven days after her admission to hospital the urine was normal.

She was seen again one month later, having been quite well in the interim, and her hæmoglobin value had risen to 12·5 grammes per 100 millilitres.

She was not then seen until March, 1956, five months after the initial episode. On this occasion she had had a respiratory infection two weeks prior to her admission to hospital, which was treated with sulphonamide tablets, and she recovered completely from this in three days. On the day before her admission to hospital her urine again showed port wine discoloration, and her skin was thought to be slightly yellow. The next day she was very tired, was yawning frequently and was complaining of abdominal pain. She had vomited once and had slight diarrhœa. A relative volunteered the information that she had eaten a handful of raw broad beans two days prior to the onset of this episode, and that she had in fact been eating raw broad beans for a few days prior to her original attack. These were the only two occasions on which she was known to have eaten the beans raw, although she had eaten cooked beans on a number of occasions before the original attack. She was also said to have had an attack with similar symptoms at some time prior to the original presenting episode, but the symptoms were mild and the urine was not discoloured.

On examination on the occasion of her second admission to hospital she did not present the marked pallor and jaundice seen on her first admission to hospital. Her temperature was 101° F., her pulse rate was 110 per minute, and her respirations numbered 26 per minute. There were no abnormal features on physical examination, and the urine was macroscopically normal.

Laboratory Investigations after the Second Attack.

On the day of her second admission to hospital (March 21, 1956) her hæmoglobin value was 7·5 grammes per 100 millilitres; erythrocytes numbered 2,500,000 per cubic millimetre; leucocytes numbered 15,600 per cubic millimetre, 80% being neutrophils, 1% basophils, 15% lymphocytes; and 4% monocytes. The reticulocyte count was 1% of red cells.

On March 22 her hæmoglobin value was 7·0 grammes per 100 millilitres; leucocytes numbered 10,000 per cubic millimetre; the reticulocyte count was 2·6%.

On March 24 her hæmoglobin value was 7·0 grammes per 100 millilitres; the reticulocyte count was 5·5%.

On March 28 her hæmoglobin value was 9·0 grammes per 100 millilitres; the reticulocyte count was 5·0%. Responses to the direct and indirect Coombs tests were negative. There were no autohæmolysins at 0° C. and

TABLE I.
Pathological Investigations.

Investigations.	Results. First Admission to Hospital.	Results. Second Admission to Hospital.
Hæmoglobin values per 100 millilitres	3·0 grammes	7·0 grammes
Erythrocytes	850,000	—
Leucocytes	11,500	10,000
Neutrophils	76%	60%
Eosinophils	0	0
Basophils	0	0
Lymphocytes	20%	38%
Monocytes	4%	2%
Normoblasts	One in 8000 red cells	0
Reticulocytes	8%	5%
Erythrocyte sedimentation rate	40 millimetres	—
Serum bilirubin	3·0 milligrammes per 100 millilitres	4·5 milligrammes per 100 millilitres
Urinary urobilinogen (Ehrlich)	Positive at 1 : 20 dilution	Positive at 1 : 20 dilution
Urinary bilirubin	Positive	Trace
Direct Coombs test	Negative	Negative
Indirect Coombs test	—	Negative at 0° C., 27° C. and 37° C.
Autohæmolysis	Normal	Normal
Fragility of red cells in saline	Commenced at 0·54%; complete at 0·36%	Commenced at 0·41%; complete at 0·38%
Test for warm hæmolysins (one hour at 37° C.):		
Patient's cells *plus* normal serum unacidified	Negative	No autohæmolysins demonstrated
Patient's cells *plus* normal serum at pH 6·5	Negative	
Patient's cells *plus* own serum unacidified	Negative	
Patient's cells *plus* own serum at pH 6·5	Positive	
Normal cells *plus* normal serum unacidified	Negative	
Normal cells *plus* normal serum at pH 6·5	Negative	
Normal cells *plus* patient's serum unacidified	Negative	
Normal cells *plus* patient's serum at pH 6·5	Positive	
Cold hæmolysins	None	
Cold agglutinins	None	
Donath-Landsteiner reaction	—	
Test for sickling of red cells	Negative	
Wassermann and Kahn reactions	Negative	
Blood group	A Rh-negative	
Incubation (two hours at 37° C.) of patient's cells with saline extract of beans	—	No Heinz bodies produced

37° C. The osmotic fragility test gave normal results. Clot retraction was good, and the bleeding time was normal. The serum bilirubin content was 4·5 milligrammes per 100 millilitres.

Attention is drawn to the fact that in this second attack, which was milder, no antibody was demonstrated. This is in accordance with the findings of Marcolongo (1953).

Examination of the urine gave the following results: there was no albumin; leucocytes numbered 11 per cubic millimetre; urobilinogen was present to a dilution of one in 20; the benzidine test gave a negative result; a trace of bilirubin was present; no porphyrins were detected.

On this occasion transfusion was unnecessary. An antihistamine (diphenhydramine) and oral iron were given, but the therapeutic effect of the antihistamine cannot be gauged as this attack seemed milder in all respects than the first. The pyrexia subsided in 24 hours, she was playing happily within two days of her admission to hospital and she was discharged from hospital within 10 days, the parents being advised to prevent the child from again eating the beans.

When seen two weeks later she had remained quite well, and her hæmoglobin value had risen to 13·0 grammes per 100 millilitres. She was given a skin test with 0·2 millilitre (intradermally) of watery bean extract, but the result was negative. However, this is not unusual in cases of favism, in which it is normal for the test to yield negative results during and for some time after the attack and may in fact never yield positive results.

The results of pathological investigations after both attacks are set out in Table I.

Investigation of the Family.

Investigation of the family brought to light an interesting fact. This was the presence, in two members, of findings similar to those of Mediterranean anæmia. Her mother's blood was normal, but that of her father and sister showed a slightly decreased red cell osmotic fragility (Figure I). The heparinized blood was kept at 37° C. for 24 hours, the method used being that described by Dacie (1956). The sister had a small percentage of more fragile cells (Baty, Blackfan and Diamond, 1932). These changes in the fragility were paralleled by changes in the reticulocyte levels and by the appearance of the blood films. In the father the reticulocyte count was 2·7%, and it was 2·8% in the sister.

In the father's film the changes were not severe, but in every field a small number of oval erythrocytes (Dameshek, 1940) and an occasional fragmented cell could be seen, while in the sister's film there was a much more florid picture with numerous poikilocytes present. In spite of these findings neither father nor sister has a history of clinical anæmia, and their hæmoglobin values were over 12 grammes per 100 millilitres. These changes may be described as thalassæmia minima. None of the family showed any sickle cells on anaerobic incubation of their blood, and no abnormal hæmoglobins could be detected by electrophoresis. This is not surprising as the amount of hæmoglobin F in thalassæmia minima is very small, and Rich (1952), in studying the hæmoglobin electrophoretic pattern of people with thalassæmia trait found only a single peak, which was indistinguishable from normal adult hæmoglobin.

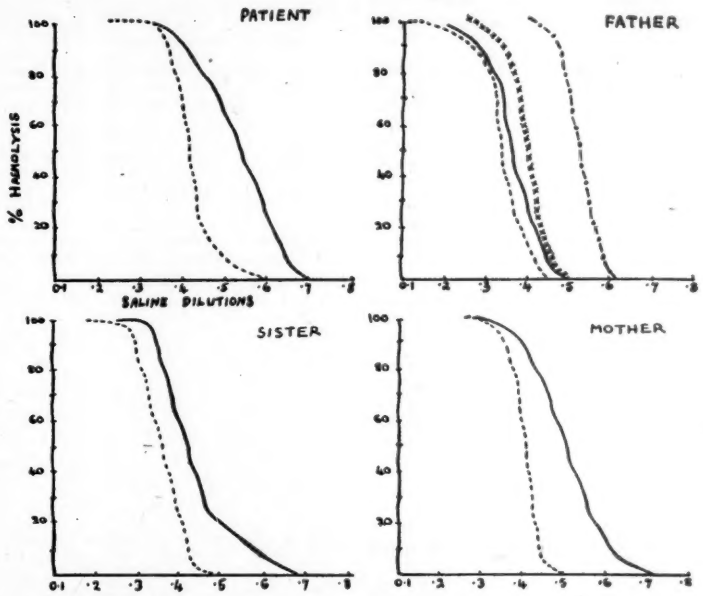

FIGURE I.

Osmotic fragility of the blood of the patient and of her father, mother and sister.
Broken line, after 30 minutes; continuous line, after 24 hours; crosses, normal after 30 minutes; dots and dashes, normal after 24 hours.

Discussion.

The presence of hæmatological abnormalities in the relatives of patients with favism has been noted by Schwarz-Tiene (1950), but if these diseases are related it would presumably have been reported more frequently from the Mediterranean countries where the ætiology of favism has been investigated. As the patient had no signs of thalassæmia it would appear that this association is fortuitous.

As regards the hereditary factor, it was previously thought that all cases occurred in people of Mediterranean stock, but one case has been published recently (McCarthy, 1955) in a boy of apparently British descent, three generations of his family having been born in Britain. This boy had a great-uncle who probably suffered from this disease, and one wonders if his forebears were washed ashore from the Spanish Armada, or reached Britain from the continent during one of the many alarums and excursions which have occurred during Britain's turbulent history.

The mechanism of production of the disease has provoked much discussion, but has still not been ascertained. One view (Marcolongo, 1953) is of a direct toxic action of the beans on the red cells. The bean extract *in vitro* certainly does agglutinate human red cells and lyse rabbit cells. Marcolongo and his colleagues found that incomplete antibodies were often present in the patient's serum at the time of the attack, and the direct and indirect antiglobulin tests yielded positive results in over 80% of patients. These tests were found to yield positive results early in the attack, and they remained so during the period of active hæmolysis. It was also stressed by Marcolongo that antibody was only demonstrable during severe attacks, and was more difficult to demonstrate and more transient in children. The finding of a hæmolysin only during the severe attack in our patient is therefore not surprising.

Against a direct toxic action in the present patient was the negative result obtained when the patient's cells were incubated with the bean extract and Heinz bodies were looked for, after the style of the test used to detect sensitivity to "Atebrin".

It is difficult to believe that sufficient protein to produce hæmolysis by a direct toxic action could be absorbed by merely passing a beanfield and inhaling the pollen (McCrae and Ullery, 1933). This feature and the frequent presence of a "positive" skin test with extracts of bean flowers, pods and beans, gives support for the hypothesis of a constitutional and allergic origin for the hæmolytic attacks (Luisada, 1941). McCrae and Ullery (1933) found evidence that the disease rarely occurred in persons who ate the beans regularly, but often occurred after the first occasion on which the beans were eaten in a given year. The general opinion at that time was that the syndrome represented a hypersensitivity to the protein of the bean, and the manifestations were due to an anaphylactic reaction.

Many congenital hæmolytic anæmias, including the spherocytic and non-spherocytic types, are now known to be caused by a metabolic defect due to an enzyme deficiency of the red cells, and it seems reasonable to postulate (Crosby, 1956) that in favism there is a similar hereditary mechanism of enzymatic deficiency of the red cells initiated by a constituent of the broad bean.

Summary.

A girl, aged three years, presented with acute attacks of hæmolysis associated with the ingestion of uncooked broad beans.

No red cell abnormality could be detected, but the presence of a weak warm hæmolysin was demonstrated in her acidified serum.

Her parents were born in the Dodecanese Islands, and two members of the family showed mild changes in their red cells similar to those found in Mediterranean anæmia trait.

The theories of the mechanism of the hæmolytic process, namely a direct toxic action, an allergic phenomenon or an enzymatic defect of the red cell, are briefly discussed.

Acknowledgements.

Our thanks are due to Dr. W. Seed under whose care the patient was admitted to hospital; also to Dr. M. P. Ryan whose encouragement led to the completion of this report, which was in progress at the time of Dr. G. A. James's death, and to Dr. W. R. Pitney for his helpful criticism of the report. Mr. G. Vos kindly prepared and investigated the broad bean extract, and Dr. D. Curnow was responsible for the hæmoglobin electrophoresis.

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Reviews.

Man, The Peculiar Animal. By R. J. Harrison; 1958. Mitcham, Victoria: Penguin Books. 7" × 4¼", pp. 320, with 32 illustrations. Price: 7s. 6d.

THE title of this book might suggest to some prospective readers that the author's desirs is to demonstrate that man must be regarded as something apart from other creatures, even the Primates. This would be a totally wrong impression, for this Pelican book expounds in convincing manner the animal affinities of the human species, but also in what details man diverges from his nearest relatives. The author accepts the suggestion that tree shrews were the forerunners of the Primates. The book is packed with detail in vertebrate comparative anatomy, but contains also much comparative physiology. Special praise can be given to the chapters on skin, teeth, upright posture, blood-grouping and reproduction.

Anatomical facts presented in a survey of vertebrates cannot fail to arouse the interest of physiologists. How do platypus and echidna manage without a prostate? In whales and elephants the testes do not descend, but these animals escape the grave consequences which occur in other mammals when the normal descent fails. Why do the optic nerves cross completely in marsupials? Why have fishes no cochlea nor an organ of Corti? Why do bats resemble Primates in having a unicornuate uterus? The function of the placenta in preventing the male fœtus from being swamped by female œstrogens is noticed, also the curious fact that it never allows the oxygen tension of fœtal blood to reach that of the mother. Some special actions of muscles are well described—for example, that of the serratus anterior in giving flexibility of arm movements and that of the levator ani in supporting the pelvic viscera. The work is primarily that of an anatomist, but one who has given much study to function as well as form. One criticism can be advanced; the author has said little about the motor cortex, and the uniqueness of human hemiplegia is omitted. Apart from this gap, which a later edition can fill, the book is replete with information clearly and humorously expressed and is a delight to read.

An Atlas of Airborne Pollen Grains. By H. A. Hyde, M.A., F.L.S., and K. F. Adams, B.Sc.; 1958. London: Macmillan and Company, Limited. 9¾" × 7", pp. 113, with many illustrations. Price: 56s. 6d.

THIS is a really useful book as an aid to the identification of pollen grains in the fresh condition. Following the useful works by Wodehouse (1935), Faegri and Iverson (1950), Erdtman (1943 to 1950), Cranwell (1952) and Bakker E. M. van Zinderen (1953), it has added to our knowledge and understanding of the morphology, classification and distribution of pollen grains. As a reference atlas it will be of great value to the botanist, the botanico-medical worker (research allergist) and the apiarist in particular. It is a scientific work of commendable quality, well published on good quality paper, lucid and well arranged. It is a reference book intended primarily for the research worker, and for this purpose is a most useful addition to his reference library. In the medical profession its usefulness will be confined chiefly to the research allergist working with airborne pollen studies, and it does, to some extent, presuppose a knowledge of botany and plant classification.

Although the book is technical, and brief descriptions of many pollens are given in highly technical terms and measurements, it nevertheless has a good glossary and photographs of pollens which are of a high degree of excellence. Once the glossary is mastered, the descriptions of the pollen grains are easy to follow, concise and botanically accurate. A very useful dichotomous key for identification of unknown pollens is given, but, like all identification keys

of this nature, its usefulness is limited to those pollens dealt with in the book, and therefore would tend to fall down when one attempted to identify an unknown pollen not among the pollens considered in this particular publication. It has the clarity of the dichotomous key with slight variations away from the true dichotomous arrangement in one or two cases, which do not spoil its value in any way.

From the allergist's point of view, many of the important pollens are included, such as plantain weed, some of the daisy family, including rag weed, Michaelmas daisies, the dock groups of weeds, the Chenopodium weeds, and the English airborne-pollen-producing trees, to mention a few; but it is a little disappointing to find only two members of the grass family included, since this would appear to be an important family of pollen producers from the Australian airborne allergy viewpoint.

The botanical arrangement, the correct botanical names and references are all good and of high order, and useful notes are given on methods of mounting and examining the pollen grains, with useful tables of measurements. One wonders whether in some cases the description of markings on pollen grains could be confused with cytoplasmic markings within the pollen grains.

Finally, as a book adding to those already available in this field, it is a most useful contribution, furthering our knowledge of this subject, and a useful reference book for the research allergist in medicine.

Poliomyelitis. By W. Ritchie Russell, C.B.E., M.D. (Edin.), D.Sc. (Oxon.), F.R.C.P. (Edin.), F.R.C.P. (Lond.); Second Edition; 1956. London: Edward Arnold (Publishers), Limited. 8¼" × 5¼", pp. 158, with 40 illustrations. Price: 16s.

OUR review of the first edition of this book, published some five years ago, was sufficiently critical to indicate that we were not happy about the author's presentation and many of his ideas. Unfortunately, the second edition offers little ground on which to change this opinion. Some improvements have taken place, but the book is unsatisfactory in at least two sections—those dealing with the application of appliances and with the management of respiratory difficulties. The importance of the latter justifies fuller comment. Despite some changes, the section concerned is still too confused in its presentation, and little reference is made to the techniques developed in the U.S.A., which can still claim the lowest mortality figures. Such statements as "The dangers of inadequate ventilation with hypoxia and retention of carbon dioxide are well recognized. Those of over-ventilation are not at present well defined" (page 82) and "The dangers of over-ventilation are insidious, so that a slight measure of underbreathing is often preferable, especially in patients who have been put in the respirator merely to give the muscles a rest" (page 92), are hard to reconcile, and, in any case, the author gives almost no guide as to the assessment of what constitutes over-ventilation and under-ventilation. The statement on page 100 that "Apparently it is possible by means of this manœuvre [glosso-pharyngeal breathing] to inject a series of mouthfuls of air into the lungs until they become well distended, after which the larynx is relaxed to permit expiration", is rather conservative, in view of the fact that in the United States it has been used for some years as the sole means of respiration during waking periods for patients with severe chronic respiratory paralysis; it has been introduced here recently for the same purpose, and it functions admirably.

Autonomic Dyspraxia: An Hypothesis for the Mechanism of Psychosis, Neurosis and Psychosomatic Disease. By Brian G. Haynes, M.B., B.S., M.R.C.P.; 1958. London: H. K. Lewis and Company, Limited. 8½" × 5½", pp. 132. Price: 15s.

IN this monograph Brian G. Haynes presents the hypothesis that emotional, psychological or subconscious conflict may be manifested in peripheral organs through an outflow channel of the subcortical centres, the hypothalamus and the autonomic nervous system. It is suggested that excitation of this system may produce a large variety of disorders due to vasomotor, glandular or smooth muscle malfunction. The term "autonomic dyspraxia" is proposed as a generic title to include all such disorders. The list of conditions in which it is postulated that autonomic dyspraxia may be present to a greater or less degree is a very wide one, and includes many diseases not usually considered to have a major psychosomatic component. The book is eminently readable, and the case is put forcibly and vividly. Some sweeping assumptions are made with a buccaneering disregard for current orthodoxy. Many readers would disagree violently with a number of Dr. Haynes's assertions. Few clinicians, however, would disagree with his contention that the division of illness into "organic" and "functional" is unjustifiable, and indeed acts as a bar to better understanding and treatment of those many patients in whom present methods of investigation fail to reveal positive evidence of disorder in suspected organs. At the very least, Dr. Haynes has done service by suggesting the label "autonomic dyspraxia", which is free from the highly undesirable associations in medical and lay minds of words such as "psychogenic", "psychological", "neurotic" and "functional". Beyond this, the author has presented a concept which could be of immediate practical value to any clinician, even though it must await neurophysiological confirmation. This book deserves to be read by all who regard their patients as human beings.

Clayton's Electrotherapy and Actinotherapy: A Textbook for Student Physiotherapists. By Pauline M. Scott, M.C.S.P., T.E.T., T.M.M.G., with a foreword by F. S. Cooksey, O.B.E., M.D., F.R.C.P.; Third Edition; 1958. London: Baillière, Tindall and Cox. 8½" × 5½", pp. 457, with 207 figures. Price: 27s. 6d. (English).

THIS book has for very many years been a standard text-book for physiotherapy students, and its popularity can only be enhanced by the new edition which has been produced by Miss Pauline Scott. In recent years there have been widespread changes in the field of electrotherapy, and this has been fully appreciated by Miss Scott. She has brought this text-book right up to date by judicious pruning of older and less used methods, such as long-wave diathermy, while very full consideration has been given to practically all the recent developments in this rapidly expanding field. In the section on low-frequency currents, full attention is directed to modern electronic generators, while in electrodiagnosis there is a concise account of modern methods, including intensity duration curves and electromyography. In the section on short-wave therapy there is a discussion on the problems of metal in the field, radio interference and frequency stabilization of machines; but there is no reference to the possible damage to hearing aids placed near the field—a matter of legal importance. In the consideration of ultra-violet therapy, reference is made to the recently developed fluorescent type of tube.

The book is well set out with clear diagrams and should prove a popular text-book. It does seem a pity, however, that in such a comprehensive text-book for the student there is no reference whatever to ultrasonic or microwave therapy. These two latter methods may not be in popular use in Britain, but their use in many other countries is so extensive that it seems desirable for students to have at least some knowledge of these modalities.

What is Your Problem, Mother?: A Common-Sense Approach to Motherhood and Child Care. By Clair Isbister, M.B., B.S., M.R.A.C.P., D.C.H.; 1958. Illustrations by Joan Abbott. Sydney, London, Melbourne, Wellington: Angus and Robertson. 8½" × 5", pp. 210, with many illustrations. Price: 21s.

IN this book Clair Isbister has set out to answer, in a cheerful and easy style, the sort of questions that all mothers frame at some time or other. These answers, based on the author's series of A.B.C. broadcast talks, convey much common sense and the necessary facts in simple, entertaining language. The subjects covered and Dr. Isbister's special approach to them are revealed in the titles she has given to some of the chapters. Most mothers would want to know about "the baby who has not read the text-book", "the doctor and his visit", "parents and the sick child in hospital", and "management of the left-handed child", to take but a few examples. And when they have finished reading they will be inclined to agree with the author that "having a family can be fun".

Writing from her own experience as housewife and mother of four children, Dr. Isbister addresses the first part of the book to other housewives. It is all there: aches and pains, diet, nerves, rest and recreation. And it is so easy to read and so true! "I have just been looking at a picture in an American magazine, which shows how much food a family of four eats in a year. Two and a half tons of it, mostly carried home by Mum, so no wonder she's tired. But seriously, we feel much more exhausted after a day of petty annoyances than after wash-day."

The greater part of the book, as one would expect, concerns small children. Here also one cannot fail to be struck by the author's vigorous style. There is a sharp contrast between her serious approach to the real dangers that face children (such as traffic accidents) and their real needs (such as affection) and her breezy dismissal of unimportant worries. Compare such passages as these: "Many of these six thousand Australian child casualties were doing some-

thing dangerous that their parents could have prevented. . . . No one should move a car without making quite sure where the under-three has got to. . . . To children, love is indeed nature's second sun; it provides the warmth in which they thrive, but they must feel it and see it and hear it"; with these: "A lot of unfortunate children are too clean . . . what does it really matter how dirty they get? . . . that silliest of all preparations, a drink of boiled water. Can you imagine anyone in their senses wanting a drink of boiled water at 2 a.m.?"

It is tempting to go on quoting, but better to advise all doctors and as many mothers as can afford the modest cost to acquire the book for themselves.

Ideals in Medicine: A Christian Approach to Medical Practice. Edited by Vincent Edmunds, M.D., M.R.C.P., and C. Gordon Scorer, M.B.E., M.D., F.R.C.S.; 1958. London: The Tyndale Press. 8½" × 5", pp. 192. Price: 20s. 9d.

THE aim of this book is "to present the distinctively Christian ideals as they may be employed in the service of medicine". The result is a sane and useful contribution to the understanding of the fundamentals lying behind medical practice. Much of the book is concerned with what is usually called medical ethics, but it supplements rather than supplants standard books on the subject; it could with advantage be read in conjunction with, for example, the excellent book "Medical Ethics: A Guide to Students and Practitioners", edited by Dr. Maurice Davidson, which we reviewed some time ago.[1]

"Ideals in Medicine" deals in successive chapters with the distinctive ethical codes of the Christian doctor, the doctor's personal standards, the satisfactions of a family doctor, the doctor's relationships with patients, their families and his colleagues, the Christian and sexual problems, the control of life, the Christian approach to the disabled, the incurable and the dying, problems of treatment, research and professional secrecy, some problems of psychological medicine, child development, mental deficiency and child delinquency, faith healing and the doctor-minister relationship, ultimate loyalties, medical missions and the doctor himself. The individual contributors are all well qualified to write on their subjects, and their views, while they cannot be expected to meet with universal agreement, are constructive and merit serious consideration by all who think about medical conduct. To those who look for guidance of a specifically Christian character the book will be of greatest interest, but they must be prepared to find not so much dogmatic statements on all questions as the more valuable consideration of essential principles. The production of the book is attractive, and it has a useful bibliography and a good index.

Chemotherapy and the Central Nervous System. By Henry McIlwain, Ph.D., D.Sc.; 1957. London: J. and A. Churchill, Limited. 9¼" × 6", pp. 336, with 61 illustrations. Price: 45s. (English).

THE title of this book, although strictly accurate, may at first appear misleading; by popular usage we associate the term chemotherapy with substances used to combat infections, whereas it can, and in this instance does, include all chemical therapeutic substances. The book is the first instance of a collected account of the drugs which act on the central nervous system. It is divided into twelve chapters, which deal with the anæsthetics and central nervous depressants, the control of body temperature, the mechanisms of chemotherapy, drugs for the treatment of infections, antiepileptic drugs, analgesics and psychosomimetic drugs. The whole of the discussion in the book is of a basic scientific nature, and no details of therapeutics are given. After a brief historical survey of the type of drug under discussion, the author deals with such aspects as the relationship between chemical structure and pharmacological activity in the group, methods for the testing and evaluation of such drugs and their absorption, distribution and metabolism.

The book is very readable and at the same time complete in its scope, and a good list of references is included at the end of each chapter, covering all the important aspects the author has recounted. It will be welcomed by research workers in physiology and pharmacology, but should also be of considerable interest to medical men who are keen to understand the scientific basis of therapeutics, on which the rational use of drugs must always depend. The author is to be congratulated on having produced a book both factual and authoritative, as well as absorbingly readable, in a field where the information was hitherto only to be found scattered throughout a wide diversity of journals.

[1] M. J. AUSTRALIA, 1957, 2: 831 (December 7).

Books Received.

[The mention of a book in this column does not imply that no review will appear in a subsequent issue.]

"Practical Microscopy", by L. C. Martin, D.Sc., A.R.C.S., D.I.C., and B. K. Johnson, D.I.C.; 1958. Third Edition. London: Blackie and Sons, Limited. 7¼" × 4¾", pp. 150, with many illustrations. Price: 12s. 6d.

This book emphasizes practical techniques and also gives a concise statement of the theory of the optical system.

"The Studies on Carcinoid Disease", by Ake H. Thorson; *Acta Medica Scandinavica*, Supplementum 334, accompanies Volume 161; 1958. 9¼" × 6¾", pp. 132, with illustrations.

A series of studies carried out in the University of Lund, Sweden.

"Incidence and Coincidence of Diabetes Mellitus and Pulmonary Tuberculosis in a Swedish County", by Hans Silwer and Per Nanne Oscarsson; *Acta Medica Scandinavica*, Supplementum 335; 1958. 9¼" × 6¾", pp. 48, with illustrations.

An investigation relating to the possibility that diabetes favours the development of tuberculosis.

"The Effect of Body Posture on the Urinary Excretion of Adrenaline and Noradrenaline", by Tage Sundin, *Acta Medica Scandinavica*, Supplementum 336, accompanies Vol. 161; 1958.

A study of the urinary output of the catechol amines, noradrenaline and adrenaline, in man during varying postures. The output was also studied after administration of a ganglion-blocking agent to healthy subjects as well as in a group of patients with essential hypertension.

"Bibliography of International Congresses of Medical Sciences", prepared by W. J. Bishop under the auspices of the Council for International Organizations of Medical Sciences. Oxford: Blackwell Scientific Publications. 8½" × 5½", pp. 260. Price: 25. (English).

The purpose of this book is to provide a guide for congress organizers, librarians, editors and others who wish to trace the published proceedings of international medical congresses.

"Neoplastic Disease at Various Sites", General Editor, D. W. Smithers, M.D., F.R.C.P., F.F.R.; Volume I, "Carcinoma of the Lung", edited by J. R. Bignall, M.D., M.R.C.P.; 1958. Edinburgh and London: E. and S. Livingstone, Limited. 9¾" × 6½", pp. 305. Price: 55s. (English).

The first of a series of monographs on neoplasms at various individual sites.

"Science News: Rocket and Satellite Research Number", edited by Archie and Nan Clow; No. 48; 1958. Victoria: Penguin Books Proprietary, Limited. London: The Whitefriars Press, Limited. 7" × 4", pp. 142, with illustrations. Price: 4s.

Contains eight articles on various aspects of rocket and satellite research, including space medicine.

"Circulation: Proceedings of the Harvey Tercentenary Congress", edited by John McMichael, M.D., F.R.C.P., F.R.S.; 1958. Oxford: Blackwell Scientific Publications. 8¾" × 5½", pp. 538, with many illustrations. Price: 50s. (English).

Contains a historical survey and a review of the present knowledge of the circulation by a distinguished group of physiologists and clinicians, with other details of the Congress.

"Ciba Foundation Symposium on the Neurological Basis of Behaviour, in Commemoration of Sir Charles Sherrington, O.M., G.B.E., F.R.S., 1857-1952"; editors for the Ciba Foundation, G. E. W. Wolstenholme, O.B.E., M.A., M.B., B.Ch., and Cecilia M. O'Connor, B.Sc.; 1958. London: J. and A. Churchill, Limited. 8" × 5", pp. 412, with 109 illustrations. Price: 52s. 6d. (English).

Nineteen papers, with subsequent discussion, presented at a symposium held in London in July, 1957, to commemorate the birth of Sir Charles Sherrington in 1857.

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CHILDREN IN HOSPITAL.

"PLAINLY, the more that children can be kept out of hospital or nursed at home the better." This sentence appears in a recent book by the Tavistock Clinic psychoanalyst, James Robertson,[1] whom many will recognize as the producer and photographer of the challenging film "A Two-Year-Old Goes to Hospital". This film was released in 1952 and has been seen by many thousands of professional people in Australia. The statement quoted above was inspired by the work of Dr. Reginald Lightwood and his colleagues at St. Mary's Hospital, London, in establishing a home-care programme for sick children.[2] The philosophy which has undoubtedly motivated this team is summed up by Dr. Mary Capes:[3] "Few will dispute that the best place to care for a child is in his own home among familiar surroundings where the people who normally give him security and affection can tend to his needs." This ideal is not always possible; there are a host of sound reasons why a certain percentage of sick children must be nursed in hospitals. It is important, however, that recent advances in our knowledge of how children react to a stay in hospital should guide both the decision to admit children and the management of the child in the hospital.

It is clear that the whole problem abounds with paradoxes, and for this reason alone there is much confusion in the minds of both doctors and parents. Foremost among the points of dispute are the effects upon children of a stay in hospital. The Tavistock group, headed by Bowlby and Robertson, has led those who claim that the separation of the young child from his parents through admission to hospital produces important and often long-lasting effects upon the behaviour and personality of the child. There are others, including eminent pædiatricians, who tend to minimize the effects and point to children who have apparently benefited, emotionally, from their stay in hospital. Professor R. S. Illingworth, of Sheffield, in a recent article[4] draws attention to this, and we are sure many of our readers can name a few of their young patients whose behaviour when in hospital and subsequently was satisfactory by any standards. Of interest in this connexion are the carefully controlled studies by D. G. Prugh[5] and G. F. Vaughan,[6] which are quoted by Robertson, and those of Robertson himself, in which children were followed up for upwards of six months after discharge from hospital. It is noteworthy that not all children were adversely affected, but the highest percentage was in the younger age groups, and children of three years and under showed the highest incidence of reaction of severe degree. Why all children of the same age are not uniformly affected is an important question, which has received scant attention from most workers in this field. A reasonable guess would be that the children who withstand a stay in hospital with minimal psychological disturbance are in some way, either by constitution or family life, better equipped. What we should endeavour to determine is, in what way they are better equipped and how this was achieved.

The way in which medical and surgical care is to be most satisfactorily provided for young children in the light of these ideas poses another question. The St. Mary's Hospital group has found a partial solution for this in the home-care programme, when the family doctor is given the support of a mobile hospital team of consultants and nurses. Another answer to this problem is, of couse, the admission of the mother to hospital with the child. Robertson points out that thirty years ago Spence demonstrated its practicability at Newcastle; but, alas, he has had few imitators, and Robertson can quote only two other instances, a hospital in the Balkans and the well-known work of the Pickerills in New Zealand. Cecily M. Pickerill and H. P. Pickerill[1] point out that to get a happy and contented baby, so essential for the satisfactory outcome of some surgical and medical procedures, one must have a happy and contented mother, and this is best achieved by admitting them to hospital together. Hospital administrators raise their voices in protest at the cost; but it should be pointed out that for over thirty years voluntary agencies in this country have been able to admit a comparatively few fortunate mothers and babies to their institutions for the satisfactory establishment of feeding, which might be considered of less importance than many surgical procedures.

Robertson has recently made another film, "Going to Hospital with Mother", which portrays the reactions to examinations, pre-medication and post-operative recovery of a 20-months-old girl whose mother was resident in the hospital. The mildness of the reactions and the rapid return to normal composure stood out in marked contrast to the observations on children whose mothers were not living-in. Robertson points out that the half-dozen mothers who were living-in showed high morale because they were able to help in the care of their children, even though some of them were seriously ill.

Following the publication by the World Health Organization in 1951 of Bowlby's book, "Maternal Care and Mental Health", daily visiting by mothers was started in many hospitals. Professor Alan Moncrieff[2] was among the first to apply it to his wards, and some Australian children's hospitals were not far behind, as was reported in these columns at the time.[3] However, it soon became apparent to all concerned that daily visiting, by itself, was not enough; the mother must be occupied in a manner that was satisfying to her and the child. Professor Illingworth is silent on what the mother should do when she visits; Robertson sees her doing all the things necessary to protect the child's social and emotional development and not just making him less miserable. The full participation of the mother who lives in the hospital and those who visit daily raises another paradox which is discussed by Robertson. Doctors apply quite different criteria to the sick child at

[1] "Young Children in Hospital", by James Robertson; 1958. London: Tavistock Publications, Limited. 7¼" × 4¾", pp. 115. Price: 4s. 6d. (English).
[2] *Lancet*, 1957, 1:313 (February 9).
[3] *Bull. World Health Organ.*, 1955, 12:427.
[4] *Lancet*, 1958, 2:165 (July 26).
[5] *Am. J. Orthopsychiat.*, 1953, 23:70 (January).
[6] *Lancet*, 1957, 1:1117 (June 1).

[1] *Brit. M. J.*, 1946, 2:337 (September 7).
[2] *Brit. M. J.*, 1952, 1:43 (January 5).
[3] M. J. AUSTRALIA, 1954, 1:563 (April 10).

home and the sick child in hospital. At home the sick child is seen to need his mother, and all but a few make good nurses, caring for their children under the supervision of the visiting practitioner. Yet the mother is seen by many hospital staff as being incapable of helping in any way with her child in hospital. The full participation of the mother in the care of her child will undoubtedly call for changes in ward routine, but in the main these should not be impossible. Far more important are the changes needed in the philosophy of many ward sisters and senior nurses. Their attitude is that they are responsible for the recovery of the patients in their care; this is frequently a driving force in their long-sustained efforts, and they consequently resent outside interference. Satisfactory application of the principle that mothers of very young children should be admitted with their children for conditions requiring short-term treatment, and that for the others daily visiting should be the recognized procedure, is going to depend upon the whole-hearted support of the nursing staff. It is probable that a number of studies will need to be made on how the mothers can be best employed and how the nursing staff can be trained to carry out the dual role, that of the professional and technical nursing of the sick child and that of helping the mother adjust her efforts to care for the physical and emotional needs of the child, within the framework of the hospital routine.

The training of the nurses and resident medical staff to a full realization of the emotional needs of the child in hospital would appear to be most important. Yet we understand that no efforts are made to do this in a number of children's hospitals in this country. Following the lines indicated by Robertson, Illingworth, Prugh and others, we would imagine that, in addition to a knowledge of the essential features of child development, the training would include preparation of the child for admission to hospital, the most satisfactory admission procedures, the detection of unfavourable emotional reactions, and psychological preparation for and support during potentially emotionally traumatic diagnostic and therapeutic procedures. While some of the training would be done through didactic lectures, undoubtedly learning would occur most effectually through properly conducted case conferences—in the day room and not, of course, at the bedside.

Current Comment.

HIRSUTISM.

The "hairy girl" has long remained the bane of the endocrinologist's existence. Hirsutism of such severity as to cause those affected to seek medical advice is common. Usually the disability caused appears to be out of all proportion to the amount of unwanted hair; at least, that is how it seems to the mere male. It is only in a very small proportion of hirsute women that any organic disease of the adrenal glands can be discovered. Moreover, the investigations required to eliminate disease of the adrenal cortex are serious and extensive, leading in some cases to laparotomy. It is therefore unrealistic to submit hundreds of healthy women to such investigations in order to eliminate the unlikely possibility of organic disease of the adrenal cortex. Furthermore, these patients are not suitable for the policy of watchful expectancy, because they are already too introspective, and repeated examinations at an endocrine clinic merely serve to emphasize the psychological aspect of their handicap.

In some patients with hirsutism other evidence of endocrine dysfunction may be present, such as irregular scanty menstrual periods, male distribution of pubic hair, short stature possibly suggesting early fusion of the epiphyses, relatively deep voice, poor breast development, some enlargement of the clitoris and 17-ketosteroid excretion at or just beyond the upper limit of normal. Although these symptoms and signs may arouse suspicion of excessive secretion of androgens, endocrinologists have learnt, as the result of bitter experience, to distrust such vague evidence. Each of these symptoms or signs is found in many normal women; and even when they are all present together in one patient, laparotomy may fail to reveal evidence of cortical disease. This impasse has led to the theory that idiopathic hirsutism is due to hypersensitivity of the hair follicles to normal concentrations of hormones.

In the absence of an unequivocal short-cut to the diagnosis of adrenocortical disease, some surgeons have advised a radical but empirical approach to the problem. However, there can be no justification for wholesale adrenalectomy in patients with simple hirsutism. Unfortunately, the normal range of urinary 17-ketosteroids is wide and not sharply defined, but minor changes should be ignored unless they are consistent and accompanied by other evidence of cortical disease. Moreover, it now seems likely that abnormal adrenocortical function may result from disturbances in enzyme systems, and that the macroscopic and microscopic appearance of the gland may show only minor changes.

These all too familiar problems have been approached by T. F. Gallagher and others[1] by means of more refined methods of studying urinary steroid metabolites. Thirteen women suffering from idiopathic hirsutism all showed an increase in the excretion of androsterone and ætiocholanolane, together with a smaller but significant increase in the urinary metabolites of glucocorticoid hormones. These findings suggest that a relative increase in the production of androgens by the adrenal cortex can be correlated with the symptom of hirsutism. If these results are confirmed, the conception that hirsutism results from hypersensitivity of hair follicles will be challenged by the hypothesis that, at least in some cases, the fault lies in excessive androgen secretion by the adrenal cortex. Unfortunately, this will not affect present treatment, which should remain conservative.

REGENERATION OF THE BLADDER AFTER CYSTECTOMY.

The regenerative powers of the bladder wall are well known, but it is only recently that the full extent of this capacity to regenerate has been realized. In 1955 A. W. Bohne and his colleagues[2] demonstrated that in dogs regeneration could take place around an implanted mould after total cystectomy, the walls of the new bladder containing smooth muscle and the cavity being lined by transitional epithelium. The mortality was very high, but in some successful cases the animals were continent and could pass urine in a normal manner. The origin of the regenerated wall raises some interesting questions. The lining of transitional epithelium presumably develops by outgrowth from the mucosa of the ureters and urethra, but the derivation of the smooth muscle is obscure.

Bohne was by no means the first to demonstrate that the bladder has remarkable powers of regeneration, but his experiments were noteworthy for their completeness, and placed the concept on a basis which plainly indicated that his procedure might be adapted for use in human surgery. Some remarkable cases of bladder regeneration in man have been recorded from time to time. However, a case recently reported by R. P. Sanchez and his colleagues[3] is believed to be the first successful instance of regeneration of the human bladder after complete cystectomy for carcinoma. Inspired by Bohne's results,

[1] *J. Clin. Investigation*, 37: 794, 1958.
[2] *Surg., Gynec. & Obst.* (1955), 100: 259 (March).
[3] *Brit. J. Urol.* (1958), 30: 180 (June).

they decided to use his method for a male patient, aged 65 years, who had a carcinoma of the postero-inferior part of the bladder. At cystectomy the whole bladder was removed with the exception of the internal meatal region. They inserted a mould which was ovoid in shape, with a capacity of 350 millilitres. At one extremity there was a neck 1·0 centimetre in length and 1·3 centimetres in diameter; this was placed within the actual vesical neck. At the opposite end of the mould there were two orifices 0·5 centimetre in diameter; they were intubated by polyethylene catheters, which ran upwards to be inserted into the lumen of each ureter. The ureteric catheters were brought out through the urethra. The mould was secured in position by a Foley catheter passed *per urethram*; the balloon of the catheter within the mould held the latter in position. The mould remained within the cavity of the pelvis, with peritoneum covering its vertex.

Three weeks after operation an excretion urogram showed normal function in both kidneys, and the mould was filled with opaque solution. A few days later the left ureteric catheter was removed, and there followed leakage through the suprapubic wound. Shortly afterwards the right catheter was removed, and leakage continued, the daily drainage through the urethral catheter being only about 300 millilitres. The suprapubic leakage decreased gradually with complete healing by three months after operation. A little later, an operation for removal of the mould was done through a left pararectal incision, since the mould had become displaced to that side. The new bladder wall was found and incised, and a large quantity of urine escaped. There was much calcareous deposit on both the outside and the inside of the mould. The interior of the new cavity was covered by a red mucosa that bled easily; the wall was one centimetre in thickness. The extraction of the mould was carried out extraperitoneally. The incisions in the new bladder were sutured, and the abdominal wall was closed. The urethral catheter was maintained in position until excretion urography showed good anatomical and physiological features. Five months after the operation the urethral catheter was removed, and the patient passed urine normally every three hours. There was slight urinary incontinence between the acts, but this amounted only to a few drops. Histological studies of various parts of the new bladder wall showed that it was lined by vertical-type transitional epithelium over a wall formed of connective tissue infiltrated with round cells; no plain muscle fibres were found.

BIOLOGICAL WARFARE.

THROUGHOUT the ages infectious diseases have often been more potent in deciding the outcome of military campaigns than any man-made weapons. Bubonic plague and typhus, in particular, have often converted almost certain success into appalling failure. Typhoid fever and the dysenteries caused very many casualties in the American Civil War, the Boer War and the Spanish American War. In World War II malaria and scrub typhus caused much illness. It is not surprising then that attempts to use infectious diseases deliberately as weapons of war have been many, but they have been crude and ineffective. However, early in World War II planned programmes were devoted to research and development in biological warfare in several countries, and these have been continued to the present. In the United States the major portion of the research was carried out at Fort Detrick in Maryland. Little information has been given out by any country as to the results of the researches. One of the workers at Fort Detrick, LeRoy D. Fothergill, has given a fairly detailed account[1] of the information available as to the organisms which can be used, the methods of spread and the measures which might be used to combat the diseases. Fothergill defines biological warfare as "the intentional use of living microorganisms or their toxic products for the purpose of destroying or reducing the military effectiveness of man". Man may also be injured secondarily by damage to his food crops or domestic animals.

[1] *Military Med.*, 1958, 123:16 (July).

It is clear from what Fothergill writes that biological warfare is primarily a strategic weapon to be used on civilian population centres. The major reason for this is that there is no "quick kill" effect, and an infected man may still retain much of his activity as a fighting man during the incubation period of the disease, and for a variable period of illness before the lethal effect occurs. The most useful method for infecting a civilian population centre is to spread an aerosol or cloud of the infective agent over the target area. Now, before this can be done satisfactorily, there are several points to be considered. The smaller the particles in the spray, the more of them will pass the defensive mechanisms of the upper respiratory tract, the trachea and the larger bronchi, and pass into the alveoli, from which they will be absorbed rapidly. Particles of one to four microns can pass these barriers. Generally bright sunlight is rapidly destructive for living microorganisms suspended in air. Air humidity is also important, as are other meteorological conditions, so that there are only certain hours during the day when conditions are favourable for this form of attack.

When a man is exposed to an infectious agent through the respiratory route rather than the natural place of entry, various problems may arise. For example, botulinus toxin is several thousand-fold more toxic when given by this route than when given by mouth. The clinical picture may vary considerably from that seen when an organism enters the body by the usual route, so making diagnosis difficult. While a large variety of infecting agents might be used in biological warfare, certain general characteristics should be met. The organisms must be highly infectious, such as those causing Q fever, tularæmia, brucellosis, glanders and coccidioidomycosis. Further, the organism selected must have sufficient viability for field requirements and should not be so difficult to grow that large-scale production is improbable. While mutant organisms may be used which are more resistant than the normal organisms to methods of treatment, it is unlikely that new, more virulent organisms will be produced. The initial, unexpected attacks will be most successful as a result of direct infection. One cannot depend upon the development of an epidemic. Not very much is known yet as to the factors necessary for epidemics. Sabotage can, theoretically at any rate, be used in biological warfare; obvious methods are the infection of processed foods and drinks, of drugs, of the air in ventilating systems and air-conditioning plants and of water supplies.

Biological warfare may find its greatest effectiveness when used for anti-crop and anti-animal purposes. This, of course, would be most effective in countries with no large stocks of foodstuffs and those depending on a single crop. If, in a future war, biological warfare became a probability, there would have to be a very great increase in public health services to use the methods now available to combat infectious diseases and to ensure uncontaminated food and water supplies, but defence against a massive biological aerosol is a new and critically serious problem. An important defensive procedure is prophylaxis by active biological immunization, but there are many organisms for which there is no method of immunization. The large-scale use of antibiotics after an attack may give good results, but by no means always. For example, no antibiotic will have any effect on *Coccidioides immitis* or *Histoplasma capsulatum* or on resistant strains of some bacteria. The giving of antibiotics immediately after exposure may merely prolong the incubation period without preventing infection. For example, monkeys exposed to lethal respiratory doses of anthrax spores were treated for several weeks with an antibiotic and showed no sign of infection during that time. When the drug was withdrawn the animals promptly developed anthrax.

Fothergill considers that the greatest hope for defence against biological warfare would be the development of effective methods for producing active immunity. But immunity against what? One cannot assume that the enemy will announce beforehand what microorganism he is going to use. If warring nations decide to use biological warfare, the prospects look very grim.

Abstracts from Medical Literature.

OPHTHALMOLOGY.

Some Neuro-Ophthalmological Problems.

A. Mooney (*Brit. J. Ophth.*, March, 1958) describes 24 cases to illustrate neuro-ophthalmological pitfalls. Papilloedema must be differentiated from optic neuritis, congenital abnormalities and hypertensive disks if the patient is to be saved from unnecessary surgery. Similarly papilloedema due to intracranial lesions must not be diagnosed as optic neuritis. High refractive errors with the possibility of ambylopia may confuse the issue or obscure the presence of an intracranial lesion. The author describes two cases illustrating the danger of the diagnosis of chronic retrobulbar neuritis. Correlation of visual acuity, fundus appearance and perimetric findings should point towards a proper diagnosis. Perimetry *plus* the appearance of the disks acts as a guide to treatment. Bitemporal hemianopia with normal disks suggests a retro-chiasmal lesion unsuitable for surgery; a central scotoma in one eye with temporal defect in the other eye suggests a space-occupying lesion in the chiasmal region, and bitemporal hemianopia, with some disk pallor, suggests that some of the tumour is prechiasmal, displacing the nerves.

The Correction of Unilateral Aphakia.

K. N. Ogle *et alii* (*Arch. Ophth.*, May, 1958) discuss the optical and physiological aspects of the correction of unilateral aphakia with contact lenses. The problems and difficulties involved in the restoration of binocular vision are suppression, lack of accommodation in the aphakic eye and the difference in size of the retinal images. The authors discuss these factors and report four cases to illustrate the difficulties involved.

Ocular Lesions in Disturbances of Fat Metabolism.

B. Anderson *et alii* (*Am. J. Ophth.*, April, 1958) outline the ocular manifestations of disordered fat metabolism. The lids are affected by xanthelasma, a lesion which consists of an accumulation of lipid material and histiocytes. Xanthoma tuberosum lesions are an extension of xanthelasma, and they have a more definite association with atheromatous cardiovascular disease. Orbital xanthomatoses with hypercholesteraemia but unassociated with any manifestation of systemic disease are occasionally encountered. Eosinophilic granuloma, the Hand-Schüller-Christian syndrome and the Letterer-Siwe disease are probably different stages of a single underlying disorder of the reticulo-endothelial system characterized by the intracellular accumulation of excessive deposits of lipid substances. In these cases exophthalmos may be the first sign. Diffuse infiltration of the cornea with lipid-like substances is occasionally seen as a primary dystrophy. In Hurler's disease there is often a diffuse corneal infiltration containing fat and chondroitin sulphate. Lipids are said to be increased in some forms of cataract. In the vitreous, synchysis scintillans is said to be due to cholesterol crystals and asteroid hyalitis to calcium soaps and fatty acids. Lipaemia retinalis occurs chiefly in diabetic coma, but has been seen in lipid nephrosis, starvation and idiopathic or essential hypercholesteraemia. The serum becomes milky solely as the result of the increase in neutral fat. Tay-Sachs disease and Niemann-Pick disease are lipoidoses of similar type, the latter having a visceral involvement. The authors discuss the possible lines of therapy which may be undertaken in these various disorders of fat metabolism.

Complications of Surgery for Glaucoma.

P. R. McDonald (*Am. J. Ophth.*, April, 1958) discusses complications which may occur in the surgical treatment of primary glaucoma. In narrow-angle glaucoma damage to the lens may occur if a keratome is used to make the incision or if toothed iris forceps are used for the iridectomy. These may be delay in the reformation of the anterior chamber if the wound is not tightly closed. In malignant glaucoma the lens must be removed even if it is clear, and in addition it is desirable to lose vitreous or to rupture the hyaloid face. If this is not done the anterior chamber remains shallow. A quiet iridocyclitis may follow iridencleisis and so it is important to keep the pupil mobile. Homatropine or neosynephrine as well as local corticosteroids should be used post-operatively. One of the disadvantages of iridencleisis is the occasional development of an updrawn pupil. Corneoscleral trephine may be followed by delayed reformation of the anterior chamber, a large cystoid bleb and progression of lens opacities.

Exenteration of the Orbit.

A. B. Reese (*Am. J. Ophth.*, March, 1958) describes an operation in which the orbital cavity after exenteration is partially filled by transplanting the temporalis and its deep fascia, thus producing a more pleasing cosmetic result. No dressings are required after 10 days, and the skin of the upper and lower lids with their cilia line can be retained. The operation leads to no difficulty with mastication. The author has used the operation on five patients.

Ocular Allergy.

F. H. Theodore (*Am. J. Ophth.*, March, 1958) discusses the treatment of ocular allergy. His thesis is that if the cause cannot be eliminated, reliance should be placed on non-specific drugs. Desensitization is reserved for special instances. The author warns against the indiscriminate use of cortisone and the danger of its use in herpes simplex. In atopic conjunctivitis, vasoconstrictors applied locally give good response, antihistaminics are helpful given systemically, desensitization may help, and steroids are helpful. Allergic dermo-conjunctivitis is due to some medicament and cure follows removal of the irritant. The local application of steroids expedites recovery. Vernal conjunctivitis responds to steroids, given at first systemically and then locally. Allergies of the eyelids respond to the removal of the cause, systemic antihistamines and vasoconstrictors. Allergies affecting the cornea and sclera respond to antihistamines and steroids. Microbial allergy of the eye and adnexa are usually due to staphylococci and staphylococcal toxoid, and autogenous vaccines may be indicated.

A New Operation for Glaucoma.

H. G. Scheie (*Am. J. Ophth.*, April, 1958) describes a new filtering operation for glaucoma. In the 12 o'clock meridian the conjunctiva and Tenon's capsule are reflected to limbus and a series of applications is made with a cautery in a line parallel with and one millimetre behind the limbus. A scratch incision is then made through the cauterized area perpendicular to the sclera to enter the angle of the anterior chamber. The cautery is then applied to the lips of the incision to cause retraction of the wound edges for one millimetre. A peripheral iridectomy is then done. Tenon's capsule and conjunctiva are then closed separately. No medication is instilled and only the treated eye is padded.

Post-Operative Care in Retinal Detachment.

J. W. Jervey (*Am. J. Ophth.*, April, 1958) is of the opinion that cure follows good surgery in cases of retinal detachment regardless of posture and attempts at fixation. The author makes little or no effort to control posture, there are few or no restrictions on toilet privileges, diet or catharsis; peephole glasses are not always used, and both eyes are kept closed; pressure is not used; the treated eye is observed on the third day; a chair is allowed from the third day on; moderate sedation is used for the first three days; the undamaged eye is uncovered on the fifth day; the patient goes home between the fifth and the seventh day, atropine is used for three weeks, and the patient is back at work in four to six weeks. Using this post-operative regime, the author has procured permanent reattachment in slightly more than 50% of cases.

OTO-RHINO-LARYNGOLOGY.

Tonsillitis and Rheumatic Fever.

L. S. Rogers (*Arch. Otolaryngol.*, May, 1958) analyses the records of 87 patients with rheumatic fever admitted over a period of two years to the Los Angeles General Hospital, with particular reference to the history of preceding respiratory infections, throat culture and tonsillectomy. Early writers were particularly impressed with tonsillitis as being often associated with the disease. It was noted in 1930 that haemolytic streptococcal infection often preceded an attack of rheumatic fever, and that in succeeding attacks this organism was often present. In the present series a history of previous respiratory infection was obtained in 49% of patients, and haemolytic streptococci were isolated from throat cultures in 39%. Twenty-eight patients were not

more than 10 years old, and 53 were over 10 years. Seventy-one still had their tonsils and 13 had had the tonsils removed. There were recurrent attacks in 43% of those who had not lost their tonsils and in 61·5% of those whose tonsils had been removed. The incidence of heart disease was 58% in the former and 69% in the latter. There is thus no evidence that previous tonsillectomy had any beneficial effect in this series. Careful grouping of the types of streptococcal infection may help in the indications for tonsillectomy. In children with repeated Group A streptococcus infection of the tonsils operation in the interval between rheumatic attacks is advisable.

Ménière's Syndrome.

M. MURRAY AND W. R. STEWART (*Arch. Otolaryngol.*, February, 1958) argue that it has been established that Ménière's disease is due to focal infection. They maintain (i) that endolymphatic hydrops is the result of changes in the water-holding capacity of the colloidal structures in the endolymph caused by toxins or invasion by organisms from infected foci; (ii) that these infected foci occur mainly in and around the teeth and/or sinuses, but that other areas of infection (tonsils, tongue, adenoid, gall-bladder etc.) may be causative in some cases; (iii) that the anatomical work of N. W. Young supports this focal infection theory by showing lymphatic pathways between the labyrinth and the naso-pharynx and the temporo-mandibular region. They state that routine sinus X rays and irrigations may fail to show infection when such is present. Pus may not necessarily be produced by all infections. Infected foci may not necessarily be removed by routine tooth extractions and/or sinus operations. As well as extracting teeth, all infected alveolar bone may need to be thoroughly removed, since they believe that in most cases the infection is deeply seated in the bone around the teeth. They recommend that after infected foci have been removed steps should be taken to restore normal occlusion.

Recurring Nasal Polyposis.

A. R. HOLLENDER (*Arch. Otolaryngol.*, May, 1958) states that excision of polypi usually produces no permanent cure, for operation in itself fails to correct the factors favouring re-growth. The author has in several previous papers discussed the relative merits of zinc ionization or radium for the prevention of recurrences. An appropriately screened fifty-milligramme capsule of radium may be used to treat separate areas of the nasal cavity for a total period of three hours. Both nasal chambers may be treated simultaneously if two capsules of 25 milligrammes each are available. As a rule two or three applications are necessary, with intervals of three weeks. Despite the failure of allergic methods to prevent recurrence of polypi, the role of allergic factors cannot be disregarded. It has been suggested that hyperplastic sinusitis is due to local sensitization of the submucosal tissues to bacterial proteins, and possibly to viral factors. Some regard polypi as being due to food or inhalant sensitivity. However, there is ample evidence of interplay of other factors, including the anatomical structure of the mucous membrane and the vasomotor stability of these parts. The results from treatment with corticosteroids have been disappointing in that while some have observed temporary shrinkage of polypi during treatment, permanent effects have not been achieved, and occasionally nasal pathological processes have become unmanageable after hormonal administration. The author concludes that the major cause of failure to control the re-growth of polypi is due to failure to pursue a methodical plan of treatment. The piecemeal office technique is quite unsatisfactory. Even in patients in whom the allergic factor has been controlled, elimination of infection and meticulous excision such as can be performed only in hospital are essential. The nose and sinuses must first be freed of infection. Sensitivity tests are necessary in employing antibacterial agents. For success in operating, the meticulous removal of all visible polypoid tissue is necessary, after which the bases of the polypi should be curetted or treated by electrodesiccation. It is preferable to wait about two weeks for healing before the application of radium. Residual tags should be sought and treated by electrodesiccation. There is some evidence that repeated surgical trauma tends to accelerate the tendency to recurrences in some instances.

SURGERY.

Cancer Cells in the Circulating Blood.

S. ROBERTS *et alii* (*Arch. Surg.*, March, 1958) describe a method for the isolation of cancer cells from blood, utilizing differences in specific gravities. They studied 100 cancer patients and found cancer cells in the circulating blood in 17% of curable patients and in 31% of incurable patients, showing that there is apparently a direct relationship between the advancing stage of the disease and the percentage of positive blood samples. In six of the seven "positive" cases studied before and during surgery they found an increase in the number of cancer cells in the circulating blood during manipulation necessary for the removal of the tumour. In two other cases they found that the cancer cells disappeared from the circulating blood within minutes after removal of the primary cancer.

Aneurysm of the Abdominal Aorta.

T. H. SELLORS (*Brit. J. Surg.*, March, 1958) states that the introduction of arterial grafting has revolutionized the treatment of aneurysms and rendered other methods more or less obsolete. This applies particularly to aneurysm of the abdominal aorta, which is open to the risk of rupture. In fact, two-thirds of the patients suffering from this condition die from sudden hæmorrhage. The majority of abdominal aneurysms occur in elderly men, particularly those with atherosclerosis and high blood pressure. A proportion, however, do present at an earlier age. Once an abdominal aneurysm has been diagnosed, there should be as little delay as possible in considering the possibilities of surgery. Aortography, while not without its risks, should be undertaken, as the X-ray pictures provide the surgeon with valuable information. An aortic homograft has proved to be a satisfactory agent and has been known to function without complications for at least seven years. This is as long as any follow-up has been possible. However, these grafts are difficult to obtain and may not be available when required. A satisfactory alternative is a prosthesis fashioned in the form of the abdominal aorta and its bifurcation. Polyvinyl sponge ("Ivalon") is not completely satisfactory, but plastic fabrics woven or sewn into tube form have proved convenient and safe. "Orlon", "Dacron" and "Vinyon N" have proved satisfactory. The technique of the operative procedure is outlined and the details of two cases are given.

Stripping Versus Ligation of Varicose Veins.

K. LOFGREN, A. RIBISI AND T. MYERS (*Arch. Surg.*, February, 1958) compare the late results obtained in a group of 200 patients who underwent high ligation for varicose veins with the results obtained in a group of 200 patients who underwent a complete stripping operation. Of 140 limbs examined five years or more after high ligation, in 40% the results were classified as excellent or good, in 5% as fair, and in 55% as poor. On the other hand, of 128 limbs examined five years or more after complete stripping, in 94% the results were classified as excellent or good, in 6% as fair, and in none as poor. Recurrence requiring further surgical treatment was found in 36% of the limbs subjected to high ligation, whereas no such recurrence was found in limbs subjected to complete stripping. Recanalization of injected superficial veins and the presence of persistent perforating veins were important factors in the high recurrence rate after high ligation. The authors consider that these results show convincing evidence of the superiority of complete stripping over high ligation in the surgical treatment of varicose veins.

Recurrent Laryngeal Nerve Lesions in Thyroidectomy.

A. WILLIAMS (*Surgery*, March, 1958) has studied 100 cases of thyroidectomy for recurrent laryngeal nerve lesions. In no case did there appear to be any nerve damage at the end of the operation, but seven patients were found to have a unilateral lesion during the few days after operation. Of these, five recovered and two had a permanent lesion. The author suggests that the cause of the post-operative lesion is œdema near the nerve causing compression of its fibres.

Pilonidal Cyst.

R. HARDAWAY (*Arch. Surg.*, January, 1958) states that the pilonidal cyst is neither hair-growing nor a cyst, but is an acquired intergluteal sinus secondary to ingrown hair from the intergluteal skin with added infection and granuloma or abscess. Recurrence and infection of cysts are usually due to ingrown hair, trauma and poor personal hygiene. He considers that treatment is best carried out by proper management and not by excision.

British Medical Association.

VICTORIAN BRANCH.

Section of Industrial Medicine.

A meeting of the Victorian Branch of the British Medical Association, Section of Industrial Medicine, was held on November 13, 1957, at the Medical Society Hall, 426 Albert Street, East Melbourne. The meeting took the form of a symposium on "The General Practitioner in Relation to Industry".

The General Practitioner in Relation to Industry.

Mr. N. F. Laidlaw read a paper entitled "Industrial Medical Legislation and General Practice" (see page 447).

Dr. W. F. Cooper read a paper entitled "The General Practitioner—the Employee—the Industrial Medical Officer" (see page 449).

Dr. M. O. Kent-Hughes read a paper entitled "The Problems of General Practice and Industry" (see page 451).

Mr. Henry Searby (Melbourne), speaking as President of the Medical Board of Victoria, said that the question of the relationship between the industrial medical officer and the general practitioner was a matter for the British Medical Association, but in recent years, at practically every meeting of the Medical Board, it had considered disputed certificates which had been referred to it in relation to sick pay. The Board had disciplinary powers in relation to false certification, which might vary from clerical error to conspiracy to defraud, and employers objected to certificates referring to patients "seen on 13th November, unfit to the 18th, and ill since the 11th", and it seemed that no one was ever fit to start work on Friday—it was always Monday! He often wondered whether the man with "a cold" really needed to be off work seven days, and there were some diagnoses which were not understandable, e.g., "fibrosis of the chest" and "acute gastritis", which it was suspected were often caused by alcohol. Lax certification caused a tremendous amount of absenteeism, and employers were finding that if a worker started in November he was very apt to claim sick leave the following October. In other words, sick leave tended to become regarded as an annual holiday. The managements of some factories were now analysing certificates and finding that many patients were obtaining certificates from certain doctors who pre-dated those certificates and used only two or three diagnoses. It would be a pity if all this led to mistrust of the honest medical certificate, and, in relation to many certificates seen by the Medical Board, it was suspected that persons alleged to be unfit for work were really away enjoying themselves. Unless the profession as a whole was more careful in certification there might be unpleasant repercussions in the future. Neither the Medical Board nor the Council of the Victorian Branch of the British Medical Association could legislate to overcome this problem; it was a matter for the individual members of the profession.

Dr. N. F. Laidlaw (Geelong) said that most industrial awards granted five days' sick leave *per annum*, and if an employee was absent for two consecutive days medical certificates were usually required. However, there were cases in which a genuinely sick employee had not sought medical advice, and in such cases employers often accepted evidence from landladies, etc.

Mr. Douglas Donald (Melbourne) mentioned that in most awards "evidence to the satisfaction of the employer" was required and not necessarily medical certificates.

Mr. Geoffrey Newman-Morris (Melbourne) said that he had been somewhat astonished when, in recent discussion with underwriters, they had taken the view that the doctors had nothing to complain of by liberalization of the conditions of entitlement under the *Workers' Compensation Act*, and their attitude was "the more patients under workers' compensation the better for the doctors". They also indicated that doctors were largely responsible for the increasing number of claims, because they advised their patients to seek compensation. In other words, the doctor was reproached for taking the patient's part. He asked: If a doctor considered his patient had a claim under workers' compensation or repatriation legislation, should he not be advised to pursue it? He considered that there were dangers in the treatment of patients by industrial medical officers, as many might have claims for compensation, and if the industrial medical officer was biased towards the employer the employee might not be made aware of his rights.

Dr. D. O. Shiels (Melbourne) said that only a few years ago there were many industrial diseases for which the victim received no compensation. Admittedly the pendulum might have swung too far the other way, but there were injustices in the past. There was no question that now workers' compensation had become a social service for which the community and not the employer should pay.

Dr. L. J. Gurry (Williamstown) considered that employers should be more interested in the use of doctors in industry. He was worried about the percentage of employees who were willing to perjure themselves to obtain benefits, and the professional integrity of the doctors was deteriorating because of patient pressure for certificates.

Dr. A. H. Keech (Dandenong) said, as a general practitioner engaged part time in industry, he would stress the need for good relationships between the industrial medical officer and the general practitioner, and the industrial medical officer should stress to his employer that, irrespective of his duty to the employer, his first duty was to the patient.

Dr. M. O. Kent-Hughes (Moonee Ponds) said that industry itself was often to blame in not getting people back to work by, for example, refusing to accept a man because he had a plaster applied which was in no way a deterrent to resumption of work.

Dr. M. G. Caine (Ballarat) said that the doctor's first loyalty should be to his patient. However, dilemmas arose in relation to sick leave and in those cases in which there was doubt whether the disability arose in the course of employment. He considered that too many clerks in industry and in the government service exceeded their authority in, perhaps, coercing patients to attend certain doctors or hospitals.

Dr. Laidlaw said that under the Commonwealth arbitration awards industry was sectionalized and it was often difficult to change the classification of a worker and, in effect, there was less trouble if he was kept on compensation. He agreed with Dr. Caine and Dr. Shiels that the existing workers' compensation legislation had created many difficulties, and that, despite the best efforts of the industrial medical officer, some clerks did exceed their authority.

Dr. John Gowland considered that Dr. Laidlaw was in error in referring to the reluctance of employers to change the status of an employee because of altered pay rates, as insurers were willing to make up the difference in pay. He also believed that the attending doctor should be more specific in saying what his patient could do—"light work" meant nothing.

Dr. Alan McCutcheon (Melbourne) said that he was a general practitioner in Carlton, which was now a "Little Italy". He wondered whether many of the New Australians were ignorant or shrewd, as he spent more time explaining why they could not have certificates than in giving them. He could not issue certificates for illnesses of which he had no knowledge. He suggested that New Australians in industry should be told that if they were sick they should see a doctor forthwith.

Dr. Laidlaw said that the automotive industries did, as part of their indoctrination, instruct their employees by a booklet in several languages.

Dr. W. F. Cooper (Melbourne), in reply to a question, said that there was no preference given to disabled persons, and if a two-armed man was in a one-armed job he was left there. However, if a vacancy occurred, his industry endeavoured to fill it with a handicapped man, whose name was on a waiting list.

Out of the Past.

In this column will be published from time to time extracts, taken from medical journals, newspapers, official and historical records, diaries and so on, dealing with events connected with the early medical history of Australia.

Dr. T. Y. COTTER.[1]

[From the *Australasian Medical Gazette*, February, 1882.]

The funeral of the late Dr. Thomas Young Cotter, the first colonial surgeon of South Australia, took place at Port Augusta on Tuesday January 10th and was largely attended, the masonic and Foresters orders being well represented. The deceased gentleman was the oldest practitioner in South Australia, his connection with the affairs of this colony com-

[1] From the original in the Mitchell Library, Sydney.

mencing in December 1835 when he was appointed by the Colonisation Commissioners for South Australia as surgeon to the infant colony. After having assisted the Commissioners with his advice in the selection of the officers and first colonists in London, he was, in August 1836, placed in charge of the Coromandel, and having arrived with his charge safe at Adelaide in the early part of 1837, he was appointed to the position of Colonial Surgeon which he held for several years. After his resignation of this office he practised his profession in Adelaide, Mount Barker, Queenstown, Robe, Angaston, and for the last eleven years at Port Augusta where he died on January 9th at the ripe old age of 76.

Special Correspondence.

NEW ZEALAND LETTER.

FROM OUR SPECIAL CORRESPONDENT.

New Dean of Otago Medical School.

SIR CHARLES HERCUS relinquishes the post of Dean of the Otago University Medical School in February, 1959, at the age of 70 years, and after 20 years of enormous and fruitful labours for medical education in the University of Otago. He is to continue in part-time service as Medical Secretary to the New Zealand Medical Research Council.

Edward G. Sayers, C.M.G., F.R.C.P. (London), recently P.R.A.C.P., Honorary F.A.C.P., at present consulting physician in Auckland, and Sub-Dean of the Branch Medical Faculty, has been appointed to succeed Sir Charles Hercus. He qualified in Otago and, after post-graduate study in London, served as a medical missionary in the Solomon Islands, returning to Auckland to practise as a physician before the war. Active service took him to various theatres, including the Pacific, and he came out as colonel, N.Z.M.C. Apart from a very busy life as a consulting physician, Dr. Sayers has examined in medicine in the School, and recently completed his term as president of R.A.C.P. He is chairman of the N.Z. Medical Council and serves on a number of committees in the Health Department dealing with specialist services. He travelled abroad in 1957, visiting Canada, U.S.A. and Great Britain.

Correspondence.

ESTABLISHMENT OF A CANCER REGISTER IN N.S.W.

SIR: It is unfortunate that New South Wales does not have a cancer register that would provide information about the incidence and course of the disease and allow assessment of treatment. The time of survival of all cancer patients after diagnosis and treatment should be recorded and analysed, and if this were done we would have more accurate knowledge of the efficacy of our treatment. The correlation of the histological type of cancer with the time of survival after treatment should be done to help in estimation of prognosis and determination of treatment and study of the behaviour of the various kinds of cancer. The State of Victoria has a cancer register and Denmark has had one since 1942, and it is stated that the majority of their cases are registered. The details of the project can be decided by statisticians, the Cancer Institute, and perhaps the Colleges of Physicians and Surgeons. Information from death certificates should be obtainable for the register, and it might be possible to have the service of punch card machines such as those at the Department of Social Services.

Cancer should be a notifiable disease, and the time of diagnosis, treatment and death should be recorded. It may be possible to combine the notification of diagnosis and treatment in many cases, and death should probably be notified on the cancer form as well as the death certificate. It might be possible to redesign the ordinary form for notifiable diseases to include cancer data. Those interested in the results of treatment of their own cases might use the register forms for their own records. Information to be recorded might include name, address, age, sex, marital status, children, familial associations, habits, other illnesses, occupation, region of domicile, date of diagnosis of the lesion, description of the lesion, site, clinical signs of spread, presence of metastases, treatment, excision, local or wide, other operations, involvement of glands at operation, radiation, chemical treatment, hormonal treatment, biopsy and post-mortem results, whether section sent in to registry, date of death, cause of death, other illnesses, interval between diagnosis and treatment, interval between treatment and death. The cost of a cancer register might be offered as an obstacle, but it should be possible to integrate it with existing services at little extra cost.

Yours, etc.,

ALAN GRANT.

Maitland Hospital,
Maitland,
New South Wales.
September 2, 1958.

THE MANAGEMENT OF OSTEOARTHRITIS OF THE HIP.

SIR: Mr. Peter Williams, in discussing the management of osteoarthritis of the hip joint (M. J. AUSTRALIA, August 30, 1958), naturally puts a surgeon's point of view, but we feel we cannot let pass some of the dogmatic statements which he makes. It is true that physiotherapy may be harmful, but this is a criticism of misuse, and may be applied to many other therapeutic measures, including surgery.

There is ample evidence—theoretical and experimental—to show that the heat from a hot-water bottle cannot penetrate further than one inch into the body; whereas with short-wave therapy heat can be developed deep within the body, in muscles and joints. We believe that much of the pain and disability in osteoarthritis is due, not to the primary intraarticular changes, but to the secondary involvement of the joint capsule and pericapsular structures, and we consider that physiotherapy is a logical method of treatment for these secondary complications. It is difficult to reconcile the statement that "exercises are, of course, contraindicated" with the later statement in his own article that "manipulation is occasionally useful in the early case". We believe that non-weight-bearing exercises are often beneficial, particularly in the prevention or correction of a flexion deformity at the hip. The development of such a deformity must throw greater strain on muscles and ligaments in walking and standing.

Deep X-ray therapy may be erratic in its results, but we believe that it has some place as a palliative measure.

We agree that intraarticular injections may likewise often fail, but we do not regard this procedure as a very unpleasant one. We agree that the risk of septic arthritis cannot be ignored, but we feel the risk is not great if due precautions are taken.

We do not believe that physical therapy is the only method of treatment, or that it is uniformly successful; neither do we believe that every patient with osteoarthritis of the hip should be submitted to surgery. We believe there is a place for both methods of treatment.

Yours, etc.,

FRANK MAY,
LEIGH T. WEDLICK.

81 Collins Street,
Melbourne,
September 4, 1958.

THE NATIONAL HEALTH SERVICE IN AUSTRALIA.

SIR: Your survey in a June number of the *British Medical Journal* of the Australian Health Service was admirable; I think that nearly all would agree that the Australian public is better served than the English, whilst at the same time the lot of the medical men here—and particularly that of the general practitioner—is infinitely better. In one respect, however, the profession is lacking: our medical schools, staffed by specialists, are not providing an adequate flow of graduates into general practice, and particularly into country practice. Thus I am credibly informed that of the last outflow of medical graduates from the University of Western Australia two and two only were attracted to general practice, none going to the country. In this matter it seems that we must either impose discipline from within or accept discipline—probably governmental—from without. It is certain that the Australian community will not indefinitely accept the wholly inadequate number of graduates now practising in the country areas. The quality of specialist

practice would be greatly improved were it imperative that each and every would-be specialist should be in general practice for at least five years (and preferably ten) before being listed as a specialist of whatever type; in general practice alone one can acquire a balanced view of what humanity needs from us, and in general practice, too, one is happily in a position unequalled in enabling "the doctor" to know people—not merely as throats, ears and what-have-you. Towards this end a short period of hospital residency is not enough; it does not show people in all their lives and in all their activities. We need more—and general practice can supply this need. Meanwhile our medical schools should be re-orientated to show general practice for what it is—the finest and most rewarding branch of all our service. Indeed it is the trunk of the tree rather than merely another branch; it is indeed the *"sine qua non"*.

Yours, etc.,

A. JACOBS.

20 Williams Road,
Narrogin,
Western Australia.

September 8, 1958.

"OSADRIN."

SIR: Recently there has been promoted on the Australian market a drug known as "Osadrin". As far as I can ascertain this drug is very similar to a product known as "Irgapyrin"—the former containing 1,4-diphenyl-3,5-dioxo-pyrazolidine, the latter 3,5-dioxo-1,2-diphinyl 4-n-butyl pyrazolidine. No mention is made in the literature promoting this article of its possible toxicity which is probably no less than that of its allied substances, probably fathered by amidopyrine. To almost every practitioner the promise of an effective agent for use in rheumatic conditions is hailed with joy, and this latest product offers untold opportunities for the harassed doctor with his numerous unresponding arthritics. My reason for writing on this subject is that since the rehabilitation of Germany there have been a number of similar products introduced to our country, some by very reputable drug firms. I feel that it behoves the more learned and experienced of our brethren to adjudicate on the safety and effectiveness of these remedies, before their wholesale acceptance and use produce in the community unfortunate and unnecessary fatal reactions.

Yours, etc.,

R. N. LOCHHEAD.

Tumut Street,
Adelong,
New South Wales.

September 1, 1958.

MEDICAL ETHICS AND INSURANCE REPORTS.

SIR: Dr. Oscar R. Schmalzbach comments (M. J. AUSTRALIA, July 26, 1958) on my letter under the above heading, but it would appear that he refers only to my final paragraph:

> Lastly, I wonder if it could not be considered an ethical breach (let alone a libel risk) to advise an insurance company, say, "This man is a malingerer", without supplying at least a copy to the patient. Is there anything in the Act which says an insurance company is entitled to a confidential or secret report on an insured worker?

Even some weeks later now it seems advisable to comment on his statements and arguments.

(i) I cannot find in my letter any statement that "it is desirable to keep up the principle of medical secrecy at all times".

(ii) "These patients are not referred for treatment and no doctor-patient relationship can possibly develop." Dr. Schmalzbach gives the impression he sees patients only from the viewpoint of an insurance doctor. If he should come to treat such a case, does he feel only a sort of Big Brother relationship to the man in his care?

(iii) The lecturette on court procedure seems to be based on the false premise in (i).

(iv) The propriety or advisability of a diagnosis of malingerer was not discussed. Then why on earth the rhetorical suggestion that I might prefer "Liar" or "Perjurer"?

(v) At last Dr. Schmalzbach does come to the point raised in my paragraph above quoted and expresses an opinion that a copy of report to the patient would serve no purpose but to deepen his symptoms, etc. I would suggest, however, an alternative effect would be to make the reporting surgeon a little more careful that any reflection on the patient such as "malingerer" could measure up to the standard of "truth and the public interest".

I again emphasize not that there is any question of keeping matters secret from an insurance company in compensation cases, but of keeping statements about him secret from the patient.

Yours, etc.,

C. C. MCKELLAR.

143 Macquarie Street,
Sydney,

September 11, 1958.

PSYCHOLOGICAL ASPECTS OF CAR ACCIDENTS.

SIR: In his psychological study of car drivers involved in accidents, Dr. Listwan[1] was amazed to be informed that alcoholism was responsible for only 7% of car accidents in New South Wales.

The explanation of this obviously too low an estimate is given in the Report of the Special Committee of the British Medical Association (1958) on the "Recognition of Intoxication". The Committee stresses the part played by small amounts of alcohol in causing accidents, and affirms its belief that people under the influence of alcohol are responsible for many more accidents (in Britain) than are shown in official records. They ascribe the difference to the hesitation of the police to attribute an accident to alcoholic intoxication unless there is sufficient evidence to justify prosecution.

The 7% in the New South Wales figures would therefore represent only those drivers who were obviously drunk. Many others whose faulty handling of the car was due to lesser grades of intoxication would be included in the other categories. Some of these categories show a striking parallelism with certain effects of small doses of alcohol as given in the British Medical Association Report[2] on "The Relation of Alcohol to Road Accidents".

Effects of Alcohol.	Accident Categories, N.S.W.
Impairment of concentration	Inattentive driving, 25%
Impairment of judgement ..	Not giving right of way, 20% Not keeping to left, 8% Pulling out suddenly from kerb, 5%
Impairment of the power of estimating risk	Excessive speed, 10%

That alcohol makes an appreciable contribution to these categories cannot be doubted.

More precision[3] is given to the part played by alcohol in accidents when the alcohol content of blood is systematically determined. With this as a guide, Pearson[3] found that in Perth 39% of car drivers killed in accidents were under the influence of alcohol, and Bowden *et alii*[4] in Melbourne at least 25%.

Acceptance of the simple rule "If you drive, don't drink" would reduce the accident toll more than any other single factor.

Yours, etc.,

E. H. DERRICK.

40 Lissner Street,
Toowong,
Brisbane.

September 10, 1958.

THE TREATMENT OF TETANUS.

SIR: Considerable Press publicity has recently been given to a number of cases of severe tetanus being treated in country hospitals. In some instances it has been reported that a respirator has been dramatically rushed to the patient. I do not wish to detract from the efforts of those in charge, but surely they would be infinitely better directed towards having the patient flown to an institution which can provide constant 24-hour a day care by a fully trained and equipped respiratory unit. Experience at teaching hospitals has shown

[1] M. J. AUST., 1958, 2:282 (August 30).
[2] *Brit. M. J.*, Supplement, 1935, 2:57.
[3] M. J. AUSTRALIA, 1957, 2:166 (August 3).
[4] M. J. AUSTRALIA, 1958, 2:13 (July 5).

that under these circumstances, with modern therapy, the death rate from this disease is at least minimized in otherwise healthy patients.

Yours, etc.,

P. W. HARVEY.

Resident Quarters,
Sydney Hospital,
September 11, 1958.

THE NEW SOUTH WALES STATE CANCER COUNCIL.

SIR: It is hoped that by now every doctor in New South Wales will have received by post copies of the 1958 edition of the monographs "Carcinoma of the Breast" and "Cancer of the Female Genital Tract", which were issued by the Post-Graduate Committee in Medicine, University of Sydney, on behalf of the New South Wales State Cancer Council. This free issue forms part of the Council's campaign to endeavour to keep the profession fully informed on cancer.

Any comment on the value of these publications would be welcomed by the Council, in order that it may decide on the issue of further monographs on cancer of other sites, so that each doctor will have a complete abridged library which it is hoped he will retain for reference, as replacement is a difficult matter.

Yours, etc.,

ALAN B. LILLEY,
Medical Director, The New South Wales State Cancer Council.

Farrer Place,
Sydney,
September 15, 1958.

BUREAUCRACY.

SIR: I have been informed today by the Department of Repatriation that in the future all accounts have to be itemized in alphabetical order.

As it is, at the present time preparing an account for the Department, answering numerous questions and filling up forms is extremely time-consuming. I fail therefore to see the wisdom of this additional clerical burden. Or is it perhaps the price we have to pay for the recent sixpence increase in fees? I hope the profession will voice a strong protest against this yet another attempt by the Government to change us medical men into clerks.

Yours, etc.,

R. F. ROSSLEIGH.

2 Dickson Street,
Newtown,
New South Wales.
September 16, 1958.

Obituary.

THOMAS ERNEST VICTOR HURLEY.

WE are indebted to SIR WILLIAM UPJOHN for the following account of the career of the late Sir Victor Hurley.

From early colonial times up to the present, the medical profession has been held in honour and esteem by the citizens of this land. Among its members have been men of great professional ability, of outstanding character, and possessing a public spirit which moved them to place their talents at the service not only of their patients and friends and fellow practitioners, but of Australians as a whole. Such a man was Victor Hurley. It was my good fortune to have known him and to have had him as my friend since we were schoolboys together. Some of the features in his mentality and character which made him an outstanding man in later life were discernible in boyhood. He was alert, merry, fond of fun, good at sport, very good at studies, frank and unafraid to expess his opinions, companionable and possessing a nature which made him friendly towards others and which compelled others to feel friendly towards him. His good mental equipment enabled him to gain scholarships and exhibitions during his student days and later on to take the higher degrees of M.D., M.S. and the F.R.C.S. But these mental abilities alone would not have made him the remarkable and lovable man who was known to so many in later life. These mental abilities were combined with a natural charm, an equable quiet cheerfulness, an obviously sincere and honest attitude to any personal or public problem, and with a personality which unconsciously invited a friendly approach from others. In addition he was blest throughout his life, till the last few years, with excellent health, and so was enabled to work long hours, and with great concentration and mental clarity, on problems of policy or administration which would have brought physical or mental fatigue to other men less fortunately endowed. His sense of humour sustained him thoughout many times of difficulty. He was highly appreciative of funny stories and ridiculous situations. Very often a heated situation or an irritating individual would fail to annoy him as it would most people. He could see, without showing it at the time, how silly was a pompous or an angry man. He was wonderfully tolerant of bores and fools, but dropped the acquaintance of anyone whom he considered insincere, dishonest, or dishonourable to his profession. In debate he expressed himself clearly, unequivocally and sometimes at great length in a detailed factual statement. He was never carried away by heated argument, nor was his judgement made defective by emotion. The only time I have known him to show resentment in debate was when he believed an opposing speaker was expressing an opinion which he felt sure the speaker could not sincerely hold.

In the course of his life he developed many interests, but his interest in the Melbourne Hospital was above all others, outside his home life. His association with the Melbourne Hospital was an unusually long and varied one. He began as a medical student in the old or third last Melbourne Hospital in Lonsdale Street in 1907, was appointed resident medical officer in 1910, serving under Fred Bird, Robert Stirling and Henry Maudsley, was medical superintendent in 1912 during the building of the second last Melbourne Hospital in Lonsdale Street, and retired from the position of President of the Committee of Management in 1956 to become Vice-President. In this long period of more than fifty years his connexion with the hospital was unbroken.

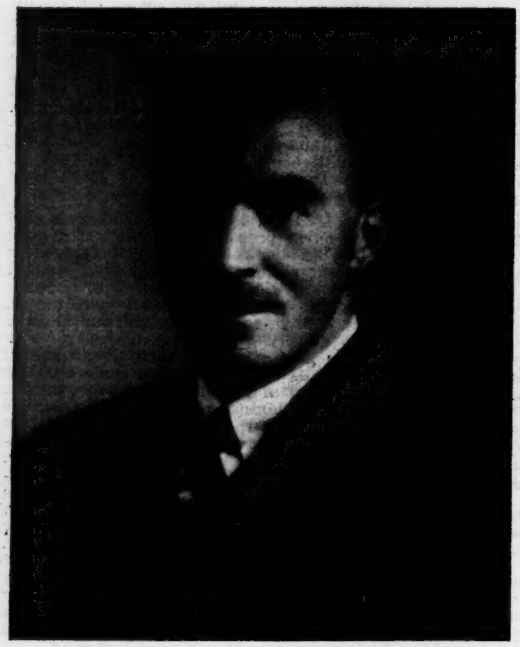
A medical student in 1908 did not have his classes and studies rigidly arranged as at present. He was left a good deal to his own devices, and in fact some of his teachers rarely turned up or taught at all. Consequently a student with any initiative found ways of getting the best training he could during the hospital years. Vic and I were mates, and we decided we would have to look beyond our allotted schedule if we were to qualify ourselves practically. For instance, we went in the late afternoon to a livery stable, which housed a horse ambulance depot where some hospital dressers, who doubled the part of ambulance orderlies, taught us very well the art of bandaging and the application of simple dressings. We later took the opportunity with a few others of attending at the Alfred Hospital surgical demonstrations by Hamilton Russell and medical tutorials by Dr. McKeddie. These were excellent. At the Melbourne Hospital one of our most valuable clinical experiences was gained in an unofficial way by attending with Dr. John McKelvey at his daily examination and admission of new patients. McKelvey, at that time medical superintendent, was a brisk young man, most thorough in his clinical examination, but as a medical superintendent he had nothing to do with students. However, Vic, in his friendship-inviting character, attracted McKelvey's attention and was invited to his office to see the new patients being examined and admitted, and, as Vic's mate, it was my good fortune to get in also.

The routine was that McKelvey asked his questions of the patient, made his examination, arrived at his diagnosis, and then we in turn examined and made our diagnoses. McKelvey would then tell us what was his diagnosis, and we would see how near or far we were from what was presumably correct. The bargain was that in return for this privilege we were not to consume his time by asking questions and we stuck to this. Years after we used to discuss this experience, and we agreed it played a most useful part in training us to make quick, essential, general examinations and observations, to arrive at a pretty reliable first diagnosis. McKelvey, later Sir John, soon returned to Sydney to gain distinction as a gynæcologist, and we both maintained a grateful contact with him till his death many years later.

In a similar way we obtained from a pathologist unauthorized operative surgery experience at another institution. We passed our final year examination in 1909, wherein Vic got the exhibition in medicine and Alan Newton the exhibition in surgery. As we did not take up duties till March, 1910, Vic decided to go round the country towns with an insurance agent making a little money at medical examinations. In consequence he was absent from the city when the medical board registered us early in 1910. Accordingly he was an unregistered practitioner for his first month at the Melbourne Hospital, till he could be registered at the next meeting of the medical board. During that month he

had an anxious time avoiding any situation which might land him in legal trouble, such as certifying to death or insanity, or being called up as a medical witness in an accident case. The other resident medical officers had to shepherd him during this period.

He stayed on next year as a registrar, and on the resignation of Dr. C. V. McKay he was appointed medical superintendent in 1912, at an unusual early age for such an office. The office was a particularly onerous one at this period, for the greater part of the old hospital was to be demolished while new wards, operating theatre, casualty and out-patients' department and nurses' home were being built. All these departments had to be kept functioning while demolition and building were going on. The problem was very difficult for architect, builder and medical superintendent, but it was successfully and smoothly accomplished and the success was in great part due to the intelligence, assiduity, imperturbable equanimity and cheerful good-naturedness of the young medical superintendent. Amidst all this turmoil he somehow found time to study for and pass his M.S. degree. He had already obtained the M.D.



The committee of management and the honorary medical staff formed such a high opinion of his ability and personality that he was appointed to the first vacancy on the out-patient honorary surgical staff in 1914, on his resignation of the office of medical superintendent.

He commenced private practice in Collins Street, but when war broke out he volunteered, and was accepted, for service in the A.I.F. He sailed with the first convoy, had the disgust and boredom of looking after remounts on his troopship, had the temporary excitement of the battle between the *Sydney* and *Emden*, and the bewildering experience of disembarking in Egypt ship-bound horses, suddenly terrified into a stampede, scattering them over the desert, when they made their first acquaintance with a string of camels. After a period in camp with an ambulance in Egypt, he sailed with the A.I.F. in the transports which carried the original Anzacs. He was a witness of the landing and spent months as a medical officer on the beaches till the final evacuation and the end of the expedition.

We met again in Egypt, and later went with a hospital unit to a village outside Marseilles, where we took over from an Indian medical unit, preparing for our Australians to pass through on the route to the north, later to take part in the misery, muck and slaughter of the Somme.

He was detached from this unit and taken to the newly reorganized Australian Headquarters in London, where General Neville Howse, V.C., had become the Director of Medical Services. Hurley went there as one of his assistant directors. His services were invaluable. The work was difficult, the hours were long, and it was all new to him, without any precedents. His sound common sense, his excellent personal relations with seniors and juniors, his impartiality and fairness, and a complete absence of any trace of official arrogance, which so often marks the promotion of the former civilian to a position of military authority—all these combined to make him a staff officer of unsurpassed excellence. He continued long at this duty till his health began to deteriorate from the long hours of work in a cold, gloomy London building, so he was allowed to go to a field unit in France. His place was taken at Army Medical Headquarters by another able Australian medical officer of beloved memory, "Jock" Anderson. He served in France till the Armistice, when many of the A.I.F., under Monash's plan, were given study or rehabilitation leave while waiting our turn to come back to Australia.

Vic Hurley, Alan Newton and I took lodgings in Baron's Court and travelled daily by underground to Whitechapel to attend post-graduate classes at the London Hospital. We lived in a mentally stimulating, harmonious and happy atmosphere. There were hard concentrated study, plain living, abundant cheerfulness and optimism, for which Vic set the keynote. We got our fellowship of the Royal College of Surgeons on the same day, then Alan went off to get married at Leeds and Vic to be married in London, to the charming woman who was such a wonderful wife to him throughout the rest of his life.

It was not long before we all met again, working at a hospital unit on Salisbury Plain for several months while we waited for ships to take us back to Australia.

On his return to Melbourne he resumed private practice in Collins Street and his hospital practice in the out-patients' department at the Melbourne Hospital in Lonsdale Street. He also maintained an association with the army, in various matters connected with A.M.C. organization and administration, from time to time between the wars. He soon began his association with the police hospital as an assistant or deputy for Mr. G. A. Syme, who had been for many years surgeon to the police hospital. On Syme's retirement from this office Hurley was appointed to the position, and he held it till the outbreak of the second World War.

Shortly after his return to Victoria after the first World War he became a member of the Council of the Victorian Branch of the British Medical Association. He gave many years of conscientious service and always took a level-headed, practical view of matters which came before the committees or Council. His reputation for fair dealing, the high regard in which he was held, and the usual friendly feeling which everyone had for him were manifested in a striking way when the Victorian Branch was disrupted by the Council's campaign against fee splitting. The surgeons, through the College of Surgeons, took an uncompromising attitude against fee splitting, and in consequence a number of practitioners joined together to see that no Fellow of the college was elected to the British Medical Council at the next general election for Council. Vic Hurley was the only member of the College of Surgeons who was returned among the generally elected members at the next council meeting, though there were other surgeons representing divisions. He continued to retain their confidence. He was President of the Victorian Branch and later became one of the Victorian representatives on the Federal Council and in due course became its President (1949 to 1951). These were wonderful tributes to his impartiality, his sagacity, his public spirit, and to the good feeling of members of the profession towards him.

At the Melbourne Hosptal he took part in all its activities, surgical, medical staff, nursing staff, medical school, of which he was for some years the Dean, and committee of management. After he ceased to be on the honorary visiting staff he rendered great service on the committee of management and finally became President of the hospital. He held this office till failing health compelled him to restrict his activities a few years before his death.

He was a foundation Fellow of the Royal Australasian College of Surgeons. He participated in its meetings and served on its council with his usual happy efficiency and good sense. Finally he was elected President of the College (1951 to 1953).

As a surgeon he was first class. His knowledge was based on long and continued studies, and on a very extensive clinical experience. In the operating room he was never dramatic. The operation proceeded calmly, purposefully and with a confidence derived from a knowledge of what to expect after a complete and careful examination of the patient prior to operation. He always maintained a humane appreciation of what was best for the patient's mental serenity and comfort as well as for his physical relief.

Throughout his life he was interested in participating in some form of sport. In his younger days it was tennis and cricket. As a cricketer he used to play for his college, for the university, for his hospital and, in pre-war days, in the medical practitioners' team which used to play mid-week enjoyable afternoon matches against army and other teams of cricketing amateurs. He never lost interest in cricket, but in later life his sporting prowess was displayed on the golf course. He was active in promoting inter-hospital matches and in encouraging annual tournaments in the British Medical Association. Whether it was in a professional committee meeting, in a service conference, or in a sporting or social gathering, his presence and harmonizing influence assured a happy atmosphere for the assembly.

As a natural supplement to his services in civil and army medical affairs, he became associated with the National Red Cross Society of Australia and was its chairman in 1939 and 1940. He resigned this office when he took over the organization and administration of the medical services of the Air Force.

When war broke out again in 1939 the R.A.A.F. was a comparatively small force, but it expanded rapidly, and its small medical service had to expand rapidly also. Vic Hurley was the natural choice when it was seen necessary to appoint a senior officer to organize and administer the medical service for the Air Force. His previous experience as an administrator in the Medical Corps of the A.I.F. was invaluable, but of even greater value was his personal prestige and his ability to make friends and get on well with other people. It smoothed the way for the Air Force medical service with the corresponding services of the Navy and Army, with civilian services and institutions, and with ministers and administrators in Canberra. I can speak with personal knowledge of his helpfulness to Alan Newton and myself, in the solving of difficulties which arose in the combined or conflicting interests of the services and civilian population, as we experienced them in the Central Medical Equipment and Coordination Committee. Of all the many fine things he did in his very full life, his building up and administration of the medical service of the Air Force was probably his greatest. He rose to the highest rank and has left behind him in that service officers and men who remember him with the greatest respect and affection.

Many honours and distinctions were conferred upon him throughout his career. He was naturally pleased to know that his reputation stood so high, but at no time did he ever become puffed up or alter in his quietly happy, cheerful friendliness with his fellow man. His public and professional life was full, happy and successful, but no chronicle of his public life would be complete without speaking of his family life. With his wonderful wife, his equal in intelligence and charm, his wonderfully intelligent and distinguished children, one big family of affectionate comrades, he enjoyed the great happiness and success which such a great and lovable character deserved.

AIR VICE-MARSHAL E. A. DALEY writes: Following the great loss sustained by Australia and the medical profession in the death of Sir Victor Hurley, it seems very appropriate to refer to the outstanding contributions he made as the first Director-General of Medical Services, R.A.A.F., in the 1939-1945 war.

Early in 1940 the Chief of the Air Staff sought removal of an anomalous "control" of the Air Force Medical Service and the appointment of a D.G.M.S. for the R.A.A.F. Victor Hurley, who in no way sought this post, being at that time Chairman of Australian Red Cross, accepted it and was appointed with the rank of air commodore, later air vice-marshal. He commenced his duties in June, 1940, with vigour, calmness and vision, bringing a free flexible mind to bear on a rapidly growing and highly technical service, but without preconceived ideas regarding its problems. He was, therefore, ready to consider and quick to perceive the implications of suggestions from R.A.A.F. medical officers who had special knowledge and training in the aviation and aviation medicine fields, along the lines of the Royal Air Force. It was along these lines that the R.A.A.F. and its medical service had to develop to meet Empire Air Training Scheme and R.A.F. operational requirements, and Victor Hurley's confident leadership soon drew many fine men from all branches of the profession to it.

Naturally, aviation medicine and aircrew problems came to the fore, and he soon established the Flying Personnel Research Committee of distinguished scientists and medical men to consider and advise on all medical and allied aspects associated with aircrew. He created two Flying Personnel Research Units, at Melbourne and Sydney physiology schools respectively. Throughout the war, his committee (he was chairman) and its subcommittees made definite contributions to the medical problems of aircrew over a wide field, and to the British Commonwealth and allied war effort, as its 140 research reports show. Hurley strongly supported sending C. H. Kellaway and F. Cotton overseas in 1941 to discuss service scientific problems with the United Kingdom, Canadian and United States authorities. In Australia, at aircrew initial training schools of the Empire Air Training Scheme, he created aviation medicine centres incorporating, e.g., orthoptic sections for aircrew ocular muscle balance problems, night vision, visuo-motor reaction time tests, psychology, selection and other aspects. Six decompression chambers for research and indoctrination of aircrew in high altitude physiology were constructed at his direction, also a human centrifuge.

He insisted that the R.A.A.F. Medical Service be closely integrated within its parent Service and intimately associated with the day-to-day activities in the air, in the workshop and in the field, and so aimed at the best complete medical organization and service, from Air Force Headquarters level through commands down to the smallest units. He planned the Medical Training School to meet all Service aspects of training for medical officers, nurses, other branches and other ranks. In 1940 he established the R.A.A.F. Nursing Service and followed this by the further development of various R.A.A.F. sick quarters and hospitals at appropriate sites throughout the Commonwealth. He always encouraged the expression of opinions from his staff officers, principal and other medical officers in his planning, so that fresh approaches could be made to problems arising.

It was his firm conviction that the Air Force must have the responsibility for treating and nursing its own personnel and, for economy, located some R.A.A.F. hospitals at army hospital sites in what are now repatriation hospitals. He desired, however, that consultants should be always mutually available between the Services. In capital cities and some country places, he enlarged the Reserve lists of specialists and general practitioners who, while continuing private practice and hospital appointments during the war, gave part-time service to R.A.A.F. hospitals and other units. To assist the W.R.A.A.F., he attracted a fine group of women medical officers. In 1941 he established No. 1 Air Ambulance Unit (possibly the first in the British Commonwealth), and arranged for its flight to, and employment in, the Middle East; he also established a second unit for use in Australia and New Guinea.

With the entry of Japan he formed mobile medical units, established on an operational command and wing basis. Hygiene and malaria control units were similarly organized, for he recognized early the importance of tropical medicine and hygiene in sustaining efficient tropical service.

With casualties amongst aircrew and technical personnel, returning from operational service, he appreciated the need for special and speedy rehabilitation of these expensively trained and relatively few personnel. As a result, he sent selected medical officers to England to work with the R.A.F. Medical Service under Watson-Jones. On their return, his R.A.A.F. rehabilitation units were developed in Australia and New Guinea, using Watson-Jones's methods, and contributed to the safe and earlier return to duty of these personnel and others. All aspects of Service medicine, including tropical, survival, industrial, aviation, clinical problems and hospitalization, etc., received his repeated detailed consideration. He was careful to select his specialist and administrative medical staffs, and, having given them responsibilities, was ready to support them. To meet Service needs he selected medical officers to undergo special courses in, e.g., tropical medicine, psychiatry, ophthalmology, flying, surgery. He incorporated a medical statistical organization not only for records but to also to aid future operational planning.

As activities developed in the Pacific, the increasing use of ordinary transport aircraft for the evacuation of casualties as against air ambulances impressed Victor Hurley, and in 1943 he arranged with the United States 804th Casualty Evacuation Squadron to train in New Guinea R.A.A.F. medical officers and nurses in their procedures. He then established the first R.A.A.F. Casualty Air Evacuation Units which contributed greatly to the air evacuation of casualties and later sick prisoners of war of all Services. In the Defence Medical Coordination and Medical Directors' Committees he played his important role with the other medical leaders at these higher inter-departmental levels. He was tireless and did not spare himself, making visits by air to inspect first hand far-flung bases in the islands and throughout Australia. He eagerly read the statutory reports from principal medical officers.

While his responsibilities precluded him from visiting the Middle East, England or Europe, he maintained regular official correspondence with the air officers and his principal medical officers abroad also with the D.G.M.S. of the R.A.F., and was ever ready to consider ideas for improving the

medical service to overseas personnel. This applied similarly to the Royal Canadian Air Force and the United States, where he arranged for medical officers to be attached for training and liaison quite apart from those posted for duty with the Empire Air Training Scheme.

He was always mindful of the personal problems of medical officers and others separated from their families, and was considerate in minimizing periods of duty with distant commands, and helping special cases. Similarly, in 1944, he was thoughtful of those whose ages were passing the middle 40's, and made possible voluntary release to civil practice in particular instances, following his "circular" to officers at that time. He expressed concern repeatedly at the meagre allotment of decorations to members of the Medical Service and endeavoured to improve this.

His forethought made provision for starting the R.A.A.F. medical history by detailing a staff officer with other duties to devote part-time attention to it during 1944 and onwards. Thus, the framework of it with references, documents, files and authorities was available for the war historian to take over in late 1946.

He permitted the maximum professional freedom possible in the special branches of the Medical Service such as those of dentistry, nursing, pharmacy and physiotherapy. Always ready to assist with his administrative backing, he looked to each branch loyally to maintain its own professional authority in its particular field, as a team within the overall medical service. Despite his energy and his constant demand for vigorous efficient service, the atmosphere of his staff work, at meetings and in dealing with personnel and problems, though firm, was always cordial, friendly and relaxed. Tenseness or coolness never existed, for he had humour, was accessible to his staff, medical officers and others, and ready to join in social gatherings, not only with the medical branch but with the rest of the Service. His considered opinions were always highly regarded throughout Air Force Headquarters and by the various Air Ministers of those days, and his robust personal qualities greatly admired.

The Air Force, for the first time a separate service in modern war, had unpredictable problems, including medical ones, but under Victor Hurley's inspiration it can be safely said that none which arose or could be foreseen were left unsolved to the best of his ability in the light of knowledge and facilities existing in those times. His planning was always thorough and allowed for contingencies. Pressure or increased demands through changing war *tempos* found him always calm, constructive and vital. His high professional standing, great capacity, strong character and energetic leadership inspired confidence amongst all branches and ranks. His vision, flexible mind and ability to accept and deal with new approaches and problems made the R.A.A.F. a most fortunate Service. Only in 1945, with Germany collapsing and the situation clearing, did he permit himself to return on a part-time basis to his surgical work. On this basis his influence still contributed to the prestige and efficiency of the Medical Service up until late 1945, when he was transferred to the Reserve. One of his last thoughtful directions as D.G.M.S. safeguarded the careful examination and gentle handling of returning Air Force prisoners of war through R.A.A.F. rehabilitation units before they proceeded to their homes.

He was appointed Honorary Surgeon to His Majesty King George VI in 1940, and created Commander of the Bath in June, 1945. His contribution in the war to the nation, the Air Force and the profession must surely rank as an outstanding one in this field alone. He always maintained interest in the R.A.A.F. and the Aviation Medicine Group. He liked attending Air Force gatherings, the last being the annual medical dinner at Laverton in November, 1957, when he responded on behalf of the guests. His medical leadership and personal qualities are remembered with gratitude and admiration by thousands of his old Service colleagues and friends. Full Air Force honours paid a last tribute. In his duties he epitomized the spirit of the R.A.A.F. motto: "*Per ardua ad astra.*"

DR. H. C. COLVILLE writes: With the passing of Sir Victor Hurley the medical profession in Australia has lost one of its most distinguished members. There must be few of one's colleagues, past or present, who have given such devoted service in so many spheres of public and professional activity, and it would be beyond the power of any one individual to record the complete story of his remarkable career. Others will tell of his achievements in connexion with the Royal Melbourne Hospital, the Royal Australasian College of Surgeons and the Royal Australian Air Force. It falls to my lot to say something of his services to the British Medical Association in Australia.

Victor Hurley was elected to the Council of the Victorian Branch of the Association in 1921, and, apart from the break occasioned by the 1939-1945 war, served continuously in that capacity up to the time of his death. He was President of the Branch in 1931. At the end of the war in 1945, Sir Henry Newland announced his intention of retiring from the presidency of the Federal Council of the British Medical Association, and the Council was faced with the task of finding a successor to him; and it speaks volumes for the esteem in which Victor Hurley was held that it was unanimously decided that he was the ideal man for the position if he could be persuaded to take it. I was given the task of approaching him on the matter, and I did so with some trepidation in view of his many commitments and the difficulties associated with his return to civilian life after his years in the Air Force; however, all these obstacles were overridden by his great sense of duty, and he duly agreed to the proposal. He was elected as Victorian representative on the Federal Council in 1946, and was unanimously elected President in 1949; in that capacity he guided the Council through two difficult years, and it was only when he saw a worthy successor to hand in the person of Dr. Archibald Collins, as he then was, that he stepped down from the post.

It was my privilege to serve on the State and Federal Councils of the Association with Victor Hurley for just over 30 years, and it would be difficult to assess the value of his services to the medical profession in Australia during that time; he was one of those rare individuals who combine great wisdom with singleness of purpose and the highest ethical and moral standards, and it is little wonder that his fellow councillors hung on his words, and if they might on rare occasions disagree with his policies, never failed to respect them. It is to men of his calibre, dedicated to the maintenance and improvement of the conditions of medical practice, that the profession owes much of the fortunate condition in which it finds itself today.

It need hardly be said that long association with a man such as Victor Hurley must inevitably lead to a valued friendship, arising from his kindliness and never-failing willingness to give help and advice to the humblest of those coming to him with their problems. As a councillor and a man he will be sorely missed.

DR. W. W. S. JOHNSTON writes: To comment adequately on the life and character of Victor Hurley is a well-nigh impossible task, so high and numerous were his qualities, so great his achievements. At best one can view the high peaks of a life which always lay above the level of that of ordinary men, but which through the human touch, pervading all his thoughts and actions, ensured his kinship with those of every station and outlook.

Others will write of him with greater knowledge of his record in various fields—as surgeon, hospital administrator, Air Force medical chief, President of the Royal Australasian College of Surgeons, leader in the British Medical Association. I write as one of that great band of personal friends who have regarded him over the years as one to whom we owed an allegiance that nothing could shake because it was built on certain qualities in himself that appeal to all men—sincerity, sympathy, courage, kindliness.

He was always a leader, and this was shown early in his career when, within a little more than two years of completing an exceptionally brilliant course, in the company of others who combined to form a group of medical graduates the equal of which is unlikely to be seen again in the Melbourne Medical School, he was appointed Medical Superintendent of the Melbourne Hospital. Those who were privileged to act as resident medical officers during that time have never ceased to be grateful for his guidance; he was always freely approachable and wonderfully helpful with advice on the many problems that beset the young graduate. And there are many who have relied on that guidance throughout the years that have followed and have sought him out when faced with professional worries, with the day-to-day difficulties of life, with illness in themselves or their loved ones. Now when that strong support has gone there are many who are bewildered and wonder where to turn.

Hurley was appointed honorary out-patient surgeon to the Melbourne Hospital in 1914 within four years of graduation, but had served for a short period only when World War I broke out and he left on service as captain, A.A.M.C., in the 2nd Field Ambulance. During the Gallipoli campaign he came under the notice of Colonel (later Sir Neville) Howse and served on his staff in Egypt and later in London. In the words of Dr. Arthur Colvin, of Orange, who was associated during World War I with both Howse and Hurley: "Howse selected him to work on his staff because he always wanted hard workers who worked when tired or not—he believed in men with quick brains who could act quickly and give decisions. Hurley became A.D.M.S. at A.I.F. Head-

quarters, Horseferry Road, London, when Sir Neville Howse was D.M.S., A.I.F., and without doubt was his right hand man." For his exceptional war services he was several times mentioned in dispatches and was created C.M.G.

On his return to Australia he at once became engaged in a busy consulting practice and was soon one of the most sought-after surgeons in Melbourne. This active surgical life continued despite the numerous other calls on his energies, till 1957, when he was forced by ill health to curtail his work.

During his long career, the practice of surgery was his chief interest. Of his many other activities, his association with the Melbourne Hospital was probably nearest to his heart. He served in practically every position available to him in that institution, commencing as a student and in 1947 becoming president.

It was natural that with his broad outlook and sociable disposition his interests should extend beyond the purely professional ones. His ability was such that he would have been successful in many different walks of life. An instance of this was his place on the Victorian Board of the A.M.P. Society where he played an influential part in financial and business affairs.

He enjoyed the company of his fellows in a genial and hospitable way and was, for a period, president of the Melbourne Naval and Military Club. He had been a capable athlete during school and university days at cricket and football and in later years at tennis and golf. For many years he played golf off a handicap of eight, and his crisp, quickly executed and accurate shots seemed a reflection of his mental characteristics. To him the attraction to other less serious aspects of life afforded much-needed relief from the burden of his major responsibilities and, as in all things, he entered fully into the matter in hand—he was able to relax completely, and to change quickly from the serious professional man to the light-hearted and apparently carefree individual. Nowhere was this better seen than during his holiday periods at his seaside home at Point Lonsdale, where, in that happiest of family circles, he was able to escape for a time from his unusually exacting mode of life.

Despite his eminent qualities he gave no impression of superiority; he had no damping effect on those of lesser mark. He was not one of those mental giants of whom it is said that they do not suffer fools gladly. Tolerant, broad-minded, generous, he was ready to compromise on important issues not through complacency or weakness but through a desire to help and provide a constructive solution.

It was fitting that the Royal Australian Air Force should accord so great a leader their final tribute with all its impressive ceremonial. To the crowded assembly at the funeral service this seemed to emphasize by contrast the essential simplicity of the man, whom so many had gathered to honour and reverence, and whose character was portrayed with such eloquence and sympathy by Archbishop Booth in these words, which he has allowed me to quote.

> The words I use to describe the qualities of life which Sir Victor Hurley displayed would never have been used by him to describe himself. To a very large and varied company of people he was a beloved friend. We may think of his early days, his family life, his service in two wars, his devotion to his profession and his tremendous service to the community, especially at the Royal Melbourne Hospital. He knew the serenity of affection; the silence of sacrifice, the secrecy of service and the humility of greatness. Happy the man whose trade or profession calls forth his utmost devotion. Through life Victor Hurley met his opportunities with a smile; whether they were difficult or arduous mattered not. He served as an inspiration to younger men, and his teaching gift was not merely of the mind and tongue, but he himself was the touchstone of devotion. In him the cutting edge of time had shaped the beauty of the whole. In peace and war he showed courage and steadfast purpose, a love of truth and a willingness to spend himself, that those in weakness and in pain might find relief. His life was a benediction and his works do follow him.

This is a splendid eulogy, and Victor Hurley was worthy of it.

The following special minute was passed by the Council of the Victorian Branch of the British Medical Association at a meeting on July 23, 1958:

> The Council of the Victorian Branch of the British Medical Association records with deep regret the death of Thomas Ernest Victor Hurley, K.B.E., C.B., C.M.G., V.D., M.D., M.S., F.R.C.S., Eng., F.R.A.C.S., sometime President of the Branch and of the Federal Council of the British Medical Association in Australia, who gave distinguished service to his country in two wars and a lifetime of service to the medical profession and the community exemplified by his work as a master surgeon, his association with the Royal Melbourne Hospital for nearly fifty years, and by the holding of high office in many public bodies. Council extends its sympathy to Lady Hurley and her family.

Post-Graduate Work.

THE POST-GRADUATE COMMITTEE IN MEDICINE IN THE UNIVERSITY OF SYDNEY.

Post-Graduate Conference at Albury.

THE Post-Graduate Committee in Medicine in the University of Sydney announces that, in conjunction with the Border Medical Association, a post-graduate conference will be held at the Albury Base Hospital on Saturday and Sunday, October 18 and 19, 1958. The programme is as follows:

Saturday, October 18: 2.30 p.m., "Some Changes in the Practice of Obstetrics", Dr. S. Devenish Meares; 4 p.m., "Varicose Veins, the Swollen Leg and Ulceration", Dr. Alan Sharp.

Sunday, October 19: 9.30 a.m., "Neurological Cases", with film and slides, Dr. J. W. Lance; 11 a.m., "Surgery of the Ovary", Dr. S. Devenish Meares; 2.30 p.m., "Surgical Emergencies", Dr. Alan Sharp; 4 p.m., "Recent Advances in Neurology", Dr. J. W. Lance.

The fee for attendance at this course is £3 3s., and those wishing to attend are requested to notify Dr. R. S. Hayter, Honorary Secretary, Border Medical Association, North Street, Albury, as soon as possible. Telephone: Albury 557.

Post-Graduate Conference at Parramatta.

The Post-Graduate Committee in Medicine in the University of Sydney announces that, in conjunction with the Central Western Medical Association, a post-graduate conference will be held in the Nurses' Lecture Room, Parramatta District Hospital, on Saturday and Sunday, October 18 and 19, 1958. The programme is as follows:

Saturday, October 18: 2.30 p.m., "Recent Advances in Obstetrics", Dr. G. Cummins; 4 p.m., quiz session, Dr. G. Cummins.

Sunday, October 19: 10 a.m., "Peripheral Ischæmic States", Professor J. Loewenthal; 11.30 a.m., "Modern Management of Some Pulmonary Diseases", Dr. Maurice Joseph; 2 p.m., quiz session, Professor J. Loewenthal and Dr. Maurice Joseph.

The fee for attendance at the course is £3 3s., and those wishing to attend are requested to notify Dr. C. A. McDermott, Carlton Street, Granville, as soon as possible. Telephone: YU 1570.

Naval, Military and Air Force.

APPOINTMENTS.

THE following appointments, changes, etc., are published in the *Commonwealth of Australia Gazette*, No. 43, of August 7, 1958.

NAVAL FORCES OF THE COMMONWEALTH.

Permanent Naval Forces of the Commonwealth (Sea-Going Forces).

Termination of Appointments.—The appointments of Surgeon Commander George Clifford Denny and Lieutenant James Mellanby Phillips are terminated on reversion to the Royal Navy, dated 27th May, 1958, and 6th June, 1958, respectively.

Appointment.—Surgeon Lieutenant (for Short Service) Brian Tremayne Treloar is appointed Surgeon Lieutenant-Commander, dated 2nd June, 1958.

Emergency List.

Transfer to the Retired List.—Surgeon Commander Charles Anthony Downward, D.S.C., is transferred to the Retired List, dated 11th June, 1958.

Retired List.

Grant of Honorary Rank.—Surgeon Commander Charles Anthony Downward, D.S.C., is granted the honorary rank of Surgeon Captain, dated 11th June, 1958.

Citizen Naval Forces of the Commonwealth.

Royal Australian Naval Reserve.

Promotion.—Surgeon Lieutenant Andrew Charles Kingsbury is promoted to the rank of Surgeon Lieutenant-Commander, dated 28th March, 1958.

District Naval Medical Officer.—Surgeon Lieutenant-Commander Lindsay Henry Jones is appointed Acting District Naval Medical Officer, Hobart, for the period 1st July, 1958, to 31st December, 1958, inclusive.—(Ex. Min. No. 98—Approved 24th July, 1958.)

AUSTRALIAN MILITARY FORCES.

Australian Regular Army.

Royal Australian Army Medical Corps (Medical).

4/8048 Major H. A. Kreiser is appointed to command 2nd Field Ambulance, 10th June, 1958.

Citizen Military Forces.

Northern Command.

Royal Australian Army Medical Corps (Medical).—The provisional appointment of 1/39131 Captain B. S. Purssey is terminated, 14th May, 1958. To be Captain (provisionally), 15th May, 1958: 1/39131 Brian Swan Purssey.

Eastern Command.

Royal Australian Army Medical Corps (Medical).—2/79238 Captain (provisionally) R. M. McCredie relinquishes the provisional rank of Captain, 1st June, 1958, is transferred to the Reserve of Officers (Royal Australian Army Medical Corps (Medical)) (Eastern Command), and is granted the honorary rank of Captain, 2nd June, 1958. The provisional appointment of 1/61846 Captain N. P. Cleeve is terminated, 13th November, 1957. To be Captain (provisionally), 14th November, 1957: 1/61846 Noel Pitt Cleeve.

Central Command.

Royal Australian Army Medical Corps (Medical).—The provisional rank of 4/32083 Captain J. M. Collins is confirmed.

Western Command.

Royal Australian Army Medical Corps (Medical).—5/26532 Captain E. F. Haywood is transferred to the Reserve of Officers (Royal Australian Army Medical Corps (Medical)) (Western Command), 29th May, 1958. 5/26555 Captain (provisionally) F. W. S. Easton is seconded whilst in the United States of America, 29th May, 1958. To be Captain (provisionally), 26th June, 1958: 5/26587 Russell Lawrence Bissett.

Reserve Citizen Military Forces.

Royal Australian Army Medical Corps (Medical).

The following officer is placed upon the Retired List (Tasmania Command) with permission to retain his rank and wear the prescribed uniform, 31st August, 1958:

Tasmania Command.—Honorary Captain G. M. W. Clemons.

ROYAL AUSTRALIAN AIR FORCE.

Retired List.

Medical Branch.

Temporary Air Vice Marshal Sir T. E. Victor Hurley, K.B.E., C.B., C.M.G., V.D., is placed on the Retired List, 14th July, 1950, with the rank of Air Vice Marshal and with seniority as from 1st April, 1942.

Temporary Group Captain A. H. Baldwin (264907) is granted the rank of Group Captain, 17th June, 1953, with seniority as from 1st July, 1944.

Temporary Wing Commander V. E. Knight (251197) is granted the rank of Wing Commander, 14th July, 1955, with seniority as from 1st July, 1944.

Permanent Air Force.

Medical Branch.

Flight Lieutenant William Henry Taylor (035272) is transferred from the Reserve and is appointed to a short-service commission, on probation for a period of twelve months, 19th March, 1958.

The probationary appointment of Flight Lieutenant K. R. Fisher (0218481) is confirmed.

Flight Lieutenant J. F. A. Gaudry (0216890) is appointed to a permanent commission, 1st March, 1958.

Group Captain R. B. Davis (033026) is placed on the Retired List and is granted the honorary rank of Air Commodore, 4th April, 1958.

Active Citizen Air Force.

Medical Branch.

No. 21 (*City of Melbourne*) *Squadron.*—Squadron Leader A. H. Toyne (0312774) is transferred from the Reserve, 24th November, 1956.

No. 25 (*City of Perth*) Squadron.—Flight Lieutenant J. A. Rogers (051378) is transferred to the Reserve, 19th February, 1958.

Air Force Reserve.

Medical Branch.

The following former officer is appointed to a commission, 31st May, 1956, with the rank of Squadron Leader: A. H. Toyne (0312774).—(Ex. Min. No. 19—Approved 24th July, 1958.)

The Royal Australasian College of Physicians.

VICTORIAN STATE COMMITTEE.

Scientific Meeting.

THE Victorian Fellows and members of The Royal Australasian College of Physicians will hold a scientific meeting at the Austin Hospital, Heidelberg, on Saturday, October 25, 1958. The programme will be as follows:

11.30 a.m., "Chemotherapy of Tuberculosis", Dr. P. R. Bull; 12 noon, "Pulmonary Function", Dr. Malcolm Allen; 12.45 p.m., luncheon; 1.45 p.m., "The Changing Concepts in the Diagnosis and Management of Pleural Empyema", Dr. John Clarebrough; 2.15 p.m., "The Bronchial Tree in Pulmonary Tuberculosis", Dr. C. H. Fitts; 2.45 p.m., "Sarcoidosis", Dr. T. H. Steel; 3.15 p.m., afternoon tea; 3.45 p.m., "Modern Trends in the Treatment of Bronchiectasis", Dr. Brian Marks; 4.15 p.m., "Demonstration of Equipment for Lung Function Studies and the Engstrom Respirator", Dr. Gordon Price.

Australian Medical Board Proceedings.

NEW SOUTH WALES.

THE following additions and amendments have been made to the Register of Medical Practitioners for New South Wales, in accordance with the provisions of the *Medical Practitioners Act*, 1938 to 1958:

Registered medical practitioners who have complied with the requirements of Section 17 (3) and are registered under Section 17 (1a) of the Act: Clough, Elvita Eveline, M.B., B.S., 1951 (Univ. Melbourne); Lynn, Robert, M.B., B.S., 1951 (Univ. Melbourne).

Registered medical practitioners who have complied with the requirements of Section 17 (3) and are registered under Section 17 (1b) of the Act: D'Abrera, Victor St. Elmo, L.M.S. (Ceylon), 1934, D.C.P. (London), 1950, D.T.M. and H. (R.C.P. and S.), 1951; Ellam, Roy, M.B., Ch.B., 1945 (Univ. Liverpool); Flack, Henry Edmund Douglas, M.B., Ch.B., 1941 (Univ. Liverpool); Gwynn, Arthur Montagu, M.B., Ch.B., 1942 (Univ. Aberdeen); Johnson, Edward Anthony, M.B., Ch.B., 1950 (Univ. Sheffield), M.D., 1953 (Univ. Sheffield); Lacey, Catharina Josina, M.B., Ch.B., 1950 (Univ. Capetown); McIntyre, Donald McDonald, M.B., Ch.B., 1915 (Univ. Glasgow); Ryan, Thomas Christopher, L.M.S.S.A. (London), 1953; Sellers, Jeffrey Irvin, M.B., Ch.B., 1954 (Univ. Birmingham).

Registered medical practitioner who has complied with the requirements of Section 17 (3) and is registered under Section 17 (2B) of the Act: Gural, Andreas, M.D., 1944 (Univ. Zagreb).

Registered medical practitioners who are required to complete twelve months' hospital service in accordance with the

provisions of Section 17 (3) and are registered under Section 17 (1a) of the Act: Falconer, Cedric, M.B., B.S., 1958 (Univ. Sydney); Stewart, Tim John James, M.B., B.S., 1958 (Univ. Sydney).

Registered medical practitioner who has been issued with a licence under Section 21C of the Act: Nedeljkovic, Miroslav, M.D., 1934 (Univ. Belgrade).

TASMANIA.

THE following additional qualification has been registered: Morris, John Craze Henry, M.R.A.C.P., 1957.

The World Medical Association.

TWELFTH GENERAL ASSEMBLY.

Election of Officers.

AT its twelfth General Assembly held in Copenhagen, Denmark, from August 15 to 20, 1958, the World Medical Association elected the following officers: *President, 1958-1959*: Dr. Charles Jacobsen (Denmark). *President-Elect, 1958-1959*: Dr. Léon Gérin-Lajoie (Canada). *Members of Council, 1958-1961*: Dr. Hugh Clegg (U.K.), Professor Dr. L. A. Hulst (Netherlands), Dr. Felix Worré (Luxembourg).

The Council of the World Medical Association elected the following officers for the coming year: *Chairman of Council*: Dr. L. R. Mallen (Australia). *Vice-Chairman of Council*: Professor Dr. L. A. Hulst (Netherlands). *Executive Editor, "World Medical Journal"*: Dr. Austin Smith (U.S.A.). *Associate Editor, "World Medical Journal"*: Dr. Stanley S. B. Gilder (Canada).

The officers of committees for 1958-1959 include: *International Liaison*: Dr. Jean Maystre (Switzerland), Chairman. *Medical Education*: Dr. E. S. Hamilton (U.S.A.), Chairman. *Medical Ethics*: Dr. Hugh Clegg (U.K.), Chairman. *Miscellaneous Business*: Dr. Otto Rasmussen (Denmark), Chairman. *Planning and Finance*: Dr. T. C. Routley (Canada), Chairman. *Socio-Medical Affairs*: Dr. Felix Worré (Luxembourg), Chairman, Dr. Rolf Schloegell (Germany), Secretary.

The Council made the following appointments: *Regional Secretaries*: Asia, Dr. S. C. Sen (India); Australasia, Dr. John G. Hunter (Australia); Europe and Africa, Dr. M. Poumailloux (France); Latin America, Dr. Hector Rodriguez H. (Chile). *Liaison Officers*: Dr. Jean Maystre (Switzerland), Dr. P. Glorieux (Belgium), Dr. V. A. Fenger (Denmark).

Notice.

THE CHILDREN'S MEDICAL RESEARCH FOUNDATION OF N.S.W.

THE following is a list of donations to the Children's Medical Research Foundation of N.S.W. received from members of the medical profession in the period September 10 to 16, 1958:

In memory of Dr. Gordon Bradley Lowe and his work for the welfare of babies and little children: £1000.

Dr. S. W. Brown: £175.

Resident medical officers (Royal Alexandra Hospital for Children), *Dr. Gordon Colvin*: £50.

Dr. Ron Hoy, Dr. E. H. Rutledge: £25.

Dr. Daphne H. Line: £20.

Dr. H. R. Sear, Drs. L. W. and M. E. Tunley, Dr. Angus Murray, Dr. R. E. R. Gillespie, Dr. R. J. Rutherford, Dr. Una Blacker, Dr. Craig A. Horn, Dr. Marjory Little, Dr. and Mrs. W. A. Saw, Dr. Gilchrist, Dr. and Mrs. J. G. Buckley, Dr. G. A. Chambers, Dr. Carl H. Jaede, Dr. D. G. Carruthers £10 10s.

Dr. R. J. Erby: £10 0s. 6d.

Dr. L. Castill-Brown, Dr. Gertrude Gelkie, Dr. A. W. Middleton, Dr. Alan McGuinness, Dr. C. E. North: £10.

Dr. D. A. Cameron: £5 5s. 9d.

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA FOR THE WEEK ENDED SEPTEMBER 13, 1958.[1]

Disease.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Northern Territory.	Australian Capital Territory.	Australia.[2]
Acute Rheumatism	3(1)	2(2)	1	..	4(1)	..	..	..	10
Amœbiasis	..	..	..	..	..	..	..	..	..
Ancylostomiasis	..	..	2	..	..	..	..	..	2
Anthrax	..	..	..	..	..	..	..	..	..
Bilharziasis	..	..	..	..	..	..	..	..	..
Brucellosis	..	..	..	..	..	..	..	..	..
Cholera	..	..	..	..	..	..	..	..	..
Chorea (St. Vitus)	..	1(1)	..	..	..	..	..	..	1
Dengue	..	..	..	..	..	..	..	..	..
Diarrhœa (Infantile)	..	4(3)	7(5)	..	1	..	..	2	14
Diphtheria	2(1)	1(1)	..	..	..	..	..	..	3
Dysentery (Bacillary)	..	1(1)	..	1(1)	2(1)	..	..	..	4
Encephalitis	..	..	..	..	..	..	..	..	..
Filariasis	..	..	..	..	..	..	..	..	..
Homologous Serum Jaundice	..	..	..	..	..	..	..	..	..
Hydatid	..	..	..	..	..	..	..	..	..
Infective Hepatitis	102(43)	24(16)	12	..	5(3)	..	..	..	143
Lead Poisoning	..	..	..	..	..	..	..	..	..
Leprosy	..	..	..	..	6	..	..	..	6
Leptospirosis	..	..	..	..	..	..	..	..	..
Malaria	..	..	..	..	..	..	..	..	..
Meningococcal Infection	1	..	1	..	..	1	..	..	3
Ophthalmia	..	..	..	..	..	..	..	..	..
Ornithosis	..	..	..	..	..	..	..	..	..
Paratyphoid	..	..	..	..	..	..	..	..	..
Plague	..	..	..	..	..	..	..	..	..
Poliomyelitis	1	2(2)	..	..	..	..	..	..	3
Puerperal Fever	..	..	..	..	..	..	..	..	..
Rubella	..	32(23)	2(1)	2(1)	102(93)	3	..	5	146
Salmonella Infection	..	..	..	2(2)	..	..	..	..	2
Scarlet Fever	18(6)	12(9)	2	1(1)	1	..	..	..	34
Smallpox	..	..	..	..	..	..	..	..	..
Tetanus	..	2(1)	1	..	..	..	..	..	3
Trachoma	..	..	..	..	..	..	..	..	..
Trichinosis	..	..	..	..	..	..	..	..	..
Tuberculosis	15(9)	11(8)	22(10)	1(1)	6(4)	3(1)	..	..	58
Typhoid Fever	..	..	..	..	1(1)	..	..	..	1
Typhus (Flea-, Mite- and Tick-borne)	..	..	..	..	..	..	..	..	..
Typhus (Louse-borne)	..	..	..	..	..	..	..	..	..
Yellow Fever	..	..	..	..	..	..	..	..	..

[1] Figures in parentheses are those for the metropolitan area.

[2] Figures incomplete owing to absence of returns from Northern Territory.

Dr. J. A. Kennedy, Dr. R. B. Kendall, Dr. D. L. Graham, Dr. J. N. Wilson, Dr. and C. P. Reilly, Dr. and Mrs. I. Watson, Dr. E. S. Stuckey, Dr. A. M. Gwynn, Dr. and Mrs. J. Kempson Maddox, Dr. H. Speigel, Dr. K. S. Alexander, Drs. Heast, Barry and Clifton Smith, Drs. John Harley and Gordon Shortland: £5 5s.

Dr. and Mrs. D. J. Siddall: £5.

Dr. Gertrude Angel-Lord, Dr. and Mrs. J. G. Gilchrist: £3 3s.

Dr. L. Polk: £3.

Dr. R. Green: £2 2s. 6d.

Dr. R. C. Higg, Dr. Gordon E. Sanders, Dr. M. S. Richmond, Dr. T. Rodo, Dr. and V. F. Cooke: £2 2s.

Previously acknowledged, £4313 14s. 6d.; total to date, £5936 4s. 3d.

Medical Practice.

NATIONAL HEALTH ACT.

THE following notices are published in the *Commonwealth of Australia Gazette*, No. 51, of September 11, 1958.

NATIONAL HEALTH ACT, 1953-1957.

Notice in Pursuance of Section 134A.

Notice is hereby given that, the Medical Services Committee of Inquiry for the State of New South Wales, after investigation, having reported on the thirtieth day of July, 1958, concerning the conduct of Phillip Mileham Daniel, of 111 Anzac Parade, Kensington, a medical practitioner, in relation to his provision of medical services under Part IV of the National Health Act, 1953-1957, I, Donald Alastair Cameron, Minister of State for Health, did on the 19th day of August, 1958, reprimand the said Phillip Mileham Daniel.

Dated this 19th day of August, 1958.

DONALD A. CAMERON,
Minister of State for Health.

Notice is hereby given that, the Medical Services Committee of Inquiry for the State of New South Wales, after investigation, having reported on the twenty-sixth day of June, 1958, concerning the conduct of Ralph Harold Ludowici, of Wee Waa, a medical practitioner, in relation to his provision of medical services under Part IV of the National Health Act, 1953-1957, I, Donald Alastair Cameron, Minister of State for Health, did on the 13th day of August, 1958, reprimand the said Ralph Harold Ludowici.

Dated this 13th day of August, 1958.

DONALD A. CAMERON,
Minister of State for Health.

Deaths.

THE following death has been announced:

GRIEVE.—Keith Harvey Grieve, on September 19, 1958, at Vaucluse, New South Wales.

Nominations and Elections.

THE undermentioned has applied for election as a member of the New South Wales Branch of the British Medical Association:

O'Connor, Kevin, M.B., B.S., 1952 (Univ. Sydney), Princess Highway, Fairy Meadow.

The undermentioned have applied for election as members of the South Australian Branch of the British Medical Association:

Jones, Kenneth Thomas, M.B., B.S., 1950 (Univ. Adelaide).

Manson, James Ian, M.B., B.S., 1958 (Univ. Adelaide).

Mugford, Keith, M.B., B.S., 1956 (Univ. Adelaide).

The undermentioned have been elected as members of the South Australian Branch of the British Medical Association: Wyness, W. J. R., M.B., Ch.B., 1935 (Univ. Aberdeen), D.M.R.D.; Russell, F. W., M.R.C.S., L.R.C.P., 1951; Tang, Teng Kool, M.B., B.S., 1958 (Univ. Adelaide); Symons, E. M., M.B., B.S., 1957 (Univ. Adelaide).

Medical Appointments.

Dr. L. A. Little has been appointed Assessor with The Medical Assessment Tribunal, Queensland.

Dr. R. Evans has been appointed Government Medical Officer at Taroom, Queensland.

Dr. M. A. Robinson has been appointed Government Medical Officer at Surat, Queensland.

Dr. J. B. Taylor has been appointed Government Medical Officer at Crow's Nest, Queensland.

Dr. A. A. Reid has been appointed Superintendent of the Mental Hospital, Sunbury, Victoria.

Diary for the Month.

OCT. 7.—New South Wales Branch, B.M.A.: Council Quarterly.
OCT. 9.—New South Wales Branch, B.M.A.: Public Relations Committee.
OCT. 10.—Queensland Branch, B.M.A.: Council Meeting.
OCT. 10.—Tasmanian Branch, B.M.A.: Branch Council.
OCT. 13.—Victorian Branch, B.M.A.: Finance, House and Library Subcommittee.
OCT. 14.—New South Wales Branch, B.M.A.: Executive and Finance Committee; Organization and Science Committee.
OCT. 15.—Victorian Branch, B.M.A.: Clinical Meeting, Prince Henry's Hospital.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Medical Secretary, 135 Macquarie Street, Sydney): All contract practice appointments in New South Wales. Anti-Tuberculosis Association of New South Wales. The Maitland Hospital.

South Australian Branch (Honorary Secretary, 80 Brougham Place, North Adelaide): All contract practice appointments in South Australia.

Editorial Notices.

ALL articles submitted for publication in this Journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given: surname of author, initials of author, year, full title of article, name of journal, volume, number of first page of the article. The abbreviations used for the titles of journals are those adopted by the Quarterly Cumulative Index Medicus. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors submitting illustrations are asked, if possible, to provide the originals (not photographic copies) of line drawings, graphs and diagrams, and prints from the original negatives of photomicrographs. Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary is stated.

All communications should be addressed to the Editor, THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales. (Telephones: MW 2651-2-3.)

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